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A

CONSPECTUS

OF THE

PHARMACOPŒIAS

OF

LONDON, EDINBURGH, DUBLIN, PARIS, AND THE UNITED STATES:

WITH ADDITIONS AND ELUCIDATIONS FROM THE TREATISES

OF

CHRISTISON, PEREIRA, URE, BRANDE, TURNER, LIEBIG, SOUBEIRAN, THOMSON, PHILLIPS, COLLIER, &c.

LONDON:

JAMES ANGERSTEIN CARFRAE, ESSEX STREET, STRAND.

MDCCCXLVII.

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[illegible]RISTISON, PEREIRA, URE, BRANDE, TURNER, LIEBIG, SOUBEIRAN, THOMSON,
PHILLIPS, COLLIER, &c.

LONDON:

JAMES UNDERWOOD, CAMERAE, ESSEX STREET, STRAND

CONSPECTUS OF THE PHARMACOPŒIAS

Of London, Edinburgh, Dublin, Paris, and the United States.

EDITED BY G. M. MOWBRAY, ESQ.,

FELLOW OF THE ROYAL MEDICO-BOTANICAL SOCIETY.

ACETUM—*Vinegar, L.*—Colour yellowish; of peculiar odour, a fluid ounce requiring for its saturation sixty grains of crystallized carbonate of soda. The precipitate produced (in one fluid ounce?) by the addition of solution of chloride of barium does not exceed 1.14 grains of sulphate of barytes. Colour unaltered by the addition of hydrosulphuric acid (sulphuretted hydrogen).—*London.*

The strongest vinegar (malt?) contains 5 per cent. of real acetic acid; usually it does not exceed 4.6 per cent.; a fluid ounce weighs about 446 grains, saturating, when of the strength last mentioned, 58 grains of carbonate of soda; and 2 grains of it, making up 60, are allowed for saturating the sulphuric acid permitted to be mixed with the vinegar, and for decomposing the sulphates of the water used in vinegar-making: the 1.14 grain of sulphate of barytes is derived from the same sources, and proves that too much sulphuric acid has not been used. The non-action of hydrosulphuric acid demonstrates the absence of most metallic oxides.—PHILLIPS.

ACETUM BRITANNICUM—*British Vinegar, E.*—Density 1006 to 1019; sulphuretted hydrogen does not colour it; in four fluid ounces complete precipitation takes place with thirty minims of solution of nitrate of baryta.—*Edinburgh.*

The instructions of the Edinburgh College for testing British vinegar scarcely require explanation. Sulphuretted hydrogen will indicate copper or lead, which are, both of them, but especially the former, by no means unfrequent impurities. In either case a black precipitate will be occasioned. The nitrate of baryta test proves the absence of an undue proportion of sulphuric acid. It has been objected to this test by Mr. R. Phillips, that it excludes many British vinegars, to which, under the authority of the excise laws, the maker adds a thousandth of sulphuric acid. But the Edinburgh College has excluded these vinegars intentionally. Excellent British vinegar is made without any free sulphuric acid; in which case there seems no reason why a pharmacopœia should recognise an adulteration merely because it is sanctioned by the British excise. Adulterations with vegetable acids are to be detected by the taste. The instructions of the London College require but little notice. It may be observed, however, that their method of ascertaining the absence of an undue proportion of sulphuric acid, namely, the collection and weighing of a precipitate amounting to 1.14 grain, is much too tedious and refined for practical use. The instructions of the Edinburgh Pharmacopœia are in this respect greatly superior.—CHRISTISON.

ACETUM—*Vinegar, U.S.*—Impure dilute acetic acid prepared by fermentation. One fluid ounce is saturated by about thirty-five grains of crystallized bicarbonate of potassa. It affords no precipitate with solution of chloride of barium, and is not coloured by sulphohydric acid.—*United States.*

ACETUM GALLICUM—*French Vinegar, E.*—Density 1014 to 1022; ammonia, in slight excess, causes a purplish muddiness, and slowly a purplish precipitate: in four fluid ounces complete precipitation takes place, with thirty minims of solution of nitrate of baryta.—*Edinburgh.*

The effect of ammonia in occasioning a purplish muddiness and precipitate in French vinegar distinguishes that variety, so far as I have observed, from all those made in Britain, which are either unaltered by ammonia, or produce, with a dirty brownish, precipitate. In testing with a fixed measure of solution of nitrate of baryta, of fixed strength, the operator has merely to remove the precipitate by filtration, and then to ascertain that the liquid is not again precipitated by more of the test.—CHRISTISON.

ACETUM VINI—*Wine Vinegar, D.*—The Dublin College rejects malt vinegar, preferring that which is produced from wine.

VINAIGRE CRU, PARIS.—The French codex distinguishes two varieties—the one *vinaigre rouge*, and the other *vinaigre blanc*, this latter being, by the way, yellow. Their principal difference consists in the proportions of colouring matter as contained in the wines from which they are produced. Both have the same constituents as the wine from which they are obtained, excepting that the alcohol is replaced by acetic acid, as found in commerce. They are frequently contaminated with mineral acids, acrid matters, or diluted with water. One hundred parts of good Orleans vinegar saturate five parts, according to Soubeiran, ten parts Lecanu, and from five to seven and a half Berzelius, of dry purified carbonate of potash.

Specific gravity is valueless in respect to vinegar, partly on account of the various matters dissolved in the liquor, and partly because the specific gravity of pure acetic acid exceeds so slightly that of water. Sulphuric acid may be detected by a barytic salt, which forms a precipitate therewith, insoluble in hydrochloric acid; nitric acid may be detected by the addition of a few drops of sulpho-indigotic acid, which immediately loses its blue colour, becoming yellow. The presence of hydrochloric acid may be distinguished by adding nitrate of silver, which causes therein a precipitate insoluble in nitric acid. Vinegar sometimes, but not frequently, contains tartar, in which case the precipitates produced by the salts of silver and barytes will be found to dissolve in acids.—BERZELIUS.

All vinegar which contains even a minute quantity of a mineral acid becomes turbid by a solution of tartar emetic.—KUHN.

Acrid matters, such as *capsicum, mezereon, euphorbium*, &c., may best be developed by neutralizing the acid with an alkali: the acridity remains, and may readily be distinguished by the taste. For testing acids and alkalies Ure's Acetometer and Alkalimeter is a convenient instrument.

ACETUM DISTILLATUM—*Distilled Vinegar, L.*—Take of vinegar a gallon; distil into a glass receiver, from a glass retort set in a sand-bath; reserve for use the seven pints first distilled.

The product is totally vaporizable by heat. No precipitate is formed by the addition of (solutions of) acetate of lead, nitrate of silver, or iodide of potassium; neither hydrosulphuric acid (sulphuretted hydrogen) nor ammonia produce any colour. After digesting in a silver vessel, there should be no precipitate occasioned by the addition of hydrochloric acid; one hundred grains require for saturation thirteen grains of crystallized carbonate of soda.—LONDON.

The total evaporation shows that no solid impurity is dissolved in the vinegar. The non-precipitation by acetate of lead proves the absence of sulphuric acid; by nitrate of silver that of hydrochloric acid; by iodide of potassium that of lead. The non-action of hydrosulphuric acid proves the absence of metallic admixture in general. The smallest portion of copper is detected by first saturating with ammonia, and the occurrence of a reddish brown tint, and eventually a precipitate of the same colour, on the addition of ferrocyanide of potassium to the solution (Brande?). If adulterated with nitric acid, silver would be dissolved by digestion in it, and afterwards precipitated as a chloride by hydrochloric acid. The quantity of carbonate of soda to be saturated indicates the presence of 4.6 per cent. of real acetic acid. The first pint distilled was formerly ordered to be rejected, on account of its being weak; but, as it contains nearly one twelfth part of the (acetic acid contained in the?) vinegar distilled, it is now preserved. This saving is not attended with any inconvenience, unless rendering the product rather more dilute be so considered.—PHILLIPS.

ACETUM DISTILLATUM—*Distilled Vinegar, E.*—Take of vinegar (French by preference) eight parts; distil over with a gentle heat seven parts; dilute the product if necessary with distilled water till the density is 1005. The product should be colourless: unaltered by sulphuretted hydrogen; one hundred minims neutralize eight grains of carbonate of soda.—*Edinburgh.*

Differs little from weak acetic acid, when of good quality, is quite colourless, of a pure acetous odour, frequently somewhat ethereal, but entirely unmixed with empyreuma, or other disagreeable taint. It is occasionally observed that this preparation has an empyreumatic odour at first, which passes off on exposure to the air or to considerable cold. In this process a density is assumed which every distilled vinegar will reach, and, when the product of the distillation is stronger,

as often happens, it must be diluted to the standard. For these reasons Dr. Christison deems the Edinburgh process more precise than either that of the London or Dublin Colleges. Annexed are the results of seven experiments in support of his views:—

		DENSITY OF DISTILLED PRODUCT.		
		First 10th.	Next 7-10ths.	First 7-8ths.
1	French Vinegar, sp. gr. 1014.6	991	1006	1005
2	,, ,, ,, 1022.0	1008	1011	1010.5
3	,, ,, ,, ,,	996	1008	1007
4	,, ,, ,, ,,	1009.8	1013	1012.5
5	English ,, ,, 1006	1002.7	1006	1005.5
6	Scotch ,, ,, 1011	1001.1	1005.5	1004.8
7	,, ,, ,, 1019	1002.4	1005.5	1005

Whence Dr. C. infers—1. That different distilled vinegars prepared by the same process, without subsequent dilution, differ exceedingly in strength; 2. That the quantity of ethero-spirituous matter which lowers the density of the first part of the distilled liquor is still more variable, some samples apparently containing none, but others a large quantity; and 3. That the French vinegars imported into this country are stronger than those of British origin, and yield, in general, a much stronger and more aromatized distilled vinegar than that distilled from British materials. Diluted pyroligneous acid is often substituted in the shops for distilled vinegar, because cheaper, and, in general, it answers equally well.—Christison.

It has been shown, under *Acetum*, that density is not a correct test for the contents of acetic acid contained in distilled vinegar; the value of the above table is, consequently, much diminished from the omission of the only correct test of strength, viz., the saturating rapacity of the above distilled products. This omission is the more remarkable since it is evident it had not been overlooked by Dr. Christison, from the terms in which the second inference is expressed.

Acetum Distillatum—*Distilled Vinegar, D.*—Take of vinegar (of wine) ten parts; distil with a gentle heat, and in glass vessels, rejecting the first tenth, and reserving the next seven tenths, of which the density is 1005.—*Dublin.*

Some vinegars of this country (Great Britain) come very near the finest qualities of French (or wine) vinegar in point of aroma, and are distinguishable only by not yielding a purple, but rather a brown, precipitate with ammonia; hence the Dublin College is scarcely justifiable in rejecting home-made (malt?) vinegar entirely. The same authorities reject the first tenth, and then preserve the next seven tenths, and on the score of economy this process is, therefore, objectionable. Moreover, as the aroma comes over with the first portion of the fluid, which, probably, contains acetic ether (also one twelfth of the real acid contained in the vinegar distilled—Phillips), the process is faulty on this account.—Christison.

Distilled vinegar is nearly supplanted by the more economical preparation, dilute acetic acid.—*Vide* "United States' Formula."—Ed.

Vinaigre Distillé—*Distilled Vinegar, P.*—Take of wine vinegar twelve parts; distil by means of a sand heat nine parts; add to the residue an equal quantity by measure (three parts) of water; continue the distillation until the whole of the product equals the quantity by measure (twelve parts) of vinegar first employed.—*Paris.*

The addition of water during the process to the liquor remaining in the retort is intended to prevent decomposition of the residuary liquor, which gradually becomes more densely charged with fixed organic matter from the removal of the more volatile portions, and consequently liable to undergo change, particularly as the boiling point increases.—Lecanu.

The last portion distilled is weaker than the first, and possesses besides a disagreeable odour; it should not, therefore, be mixed with the latter, but kept separate for preparations, where flavour is of less consequence.—Soubeiran.

Acidum Aceticum Dilutum—*Dilute Acetic Acid, U.S.*—Take of acetic acid (sp. gr. 1.06—100 grains saturating, 83.5 grains of crystallized bicarbonate of potassa) half a pint (eight fluid ounces), distilled water five pints (eighty fluid ounces); mix them. One fluid ounce of diluted acetic acid is saturated by 36 grains of crystallized bicarbonate of potassa.—*United States.*

Bicarbonate of potassa, from its adherent moisture and hygroscopic properties, is an inconvenient test for neutralizing acids.—Ed.

Vinegar may be distilled in a copper vessel with a tin head and refrigerator. Towards the close of the operation there remains in the vessel some excessively acrid extractive matter, *sapoaceti*, which readily becomes empyreumatic. In order to prevent this flavour from being communicated to the distilled product, a quantity of powdered charcoal, equivalent to one eighth of the weight of vinegar to be distilled, is mixed with the latter in the still. If, in spite of this precaution, the distilled vinegar have an empyreumatic flavour, it may be removed by the addition of a small quantity of animal charcoal.—Berzelius.

Of whatever material the body of the still may be made, the head and worm, or condensing pipe, should be of glass or earthenware, so that the distilled product may not come into contact with any metal.—Phillips.

Distilled vinegar never possesses the refreshing acid taste and flavour of undistilled vinegar. This is, perhaps, attributable to the fact of the latter containing a little acetic ether, which is dissipated at the commencement of the process; besides which a peculiar volatile body passes over, not hitherto examined, and to which distilled vinegar is indebted for the peculiar taste which distinguishes it from that which has not been distilled. When distilled vinegar is neutralized by an alkali, and the solution evaporated, this body is gradually destroyed by the action of the air: the liquor first becomes yellow, and finally brown. In this respect it somewhat resembles aldehyde.—Berzelius.

Distilled vinegar is less agreeable than before distillation: its taste is flat and empyreumatic, owing probably to the decomposing action of heat upon the colouring matter and mucilage.—Phillips.

Acedum Aceticum—*Acetic Acid, L.*—Take of acetate of soda (crystallized) two pounds (troy), sulphuric acid (sp. gr. 1.845) nine ounces (troy), distilled (?) water nine fluid ounces; mix the sulphuric acid with the water (and allow to cool), place the acetate of soda in a glass retort, add the mixture of acid and water, and distil over the (acetic) acid in a sandbath. Care must be taken not to increase the temperature too much towards the conclusion of the operation. The specific gravity of this acid is 1.048. Eighty-seven grains of crystals of carbonate of soda are saturated by 100 grains of this acid: the product evaporated yields crystals of acetate of soda. For other tests see Acetum Distillatum.—*London.*

The saturating power of this acid shows that it contains 30.8 per cent. of real acetic acid. One hundred grains of the acetic acid, prepared according to the preceding directions, saturate 87 grains of crystallized carbonate of soda; and as 144 of this salt are equivalent to 51 of real acetic acid, it follows that the acetic acid of the P.L. is composed of anhydrous acetic acid 30.8, and water 69.2 in 100 parts. A mixture of 15 parts by weight of this acid and 85 of water is equal in strength to distilled vinegar.—Phillips.

Acidum Aceticum—*Acetic Acid (Glacial), E.*—Take of acetate of lead any convenient quantity; heat it gradually in a porcelain basin by means of a bath of oil, or fusible metal (8 tin, 4 lead, 3 bismuth), to 320° F., and stir till the fused mass concretes again; pulverise this when cold, and heat the powder again to 320° with frequent stirring until the particles cease to accrete. Add six ounces (troy) of the powder to nine fluid drachms and a half of pure sulphuric acid contained in a glass mattrass; attach a proper tube and refrigeratory, and distil from a fusible metal bath with a heat of 320° to complete dryness. Agitate the distilled liquid with a few grains of red oxide of lead, to remove a little sulphurous acid, allow the vessel to rest a few minutes, pour off the clear liquid and redistil it. The density is commonly 1063 to 1065, but not above 1068.5, and increased by 20 per cent. of water. Colourless; unaltered by sulphuretted hydrogen or nitrate of baryta, one hundred minims neutralize at least 216 grains of (crystallized) carbonate of soda.—*Edinburgh.*

The preparation of the London College does not contain much above one third of its weight of the pure acid of the Edinburgh Pharmacopœia. The easiest method of ensuring purity is to decompose the anhydrous acetate of lead by sulphuric acid at a regulated temperature. The chief difficulty lies in depriving the salt entirely of its water of crystallization. Spontaneous evaporation is too tedious a method of attaining this end, and the process is not sufficiently accelerated either in a confined space of air kept dry with sulphuric acid, or even by substituting a vapour-bath heat. But in a vacuum, with sulphuric acid to absorb the moisture, the crystallized acetate parts with its whole water in thirty-six hours; and this method is obviously applicable on the large scale (?). A more convenient method is that of the Edinburgh Pharmacopœia, to which Mr. Phillips objects as troublesome and unproductive. Acetic acid prepared by the Edinburgh formula is colourless, of extreme pungency, very caustic, volatile, vaporizable about 260°, combustible and crystallizable at 50°, whence it is sometimes called glacial; it dissolves copper, lead, and some other metals, with the aid of the action of atmospheric air; it neutralizes many metallic oxides, forming crystallizable salts; and it readily dissolves and neutralizes the vegetable alkalaids; it likewise dissolves resins, volatile oils, and camphor. It consists of one equivalent or 51.48 of anhydrous acetic acid, and 1 equivalent or 9 of water.—Christison.

Acidum Aceticum—*Acetic Acid, D.*—Take of acetate of potash 100 parts, sulphuric (sp. gr. 1.845) 52 parts; pour the acid into a tubulated retort, add gradually the acetate, waiting after each addition till the mixture cools; lastly, with a moderate heat distil the acid until the residuum is dry; the sp. gr. should be 1.074.—*Dublin.*

The above formula is convenient; but, as the acetate contains combined water, the acid it yields is weaker than that obtained from the anhydrous acetate of lead, and the process is objectionable, inasmuch as an expensive salt is employed.—Christison.

Acetic acid is distilled, on the large scale, from shallow copper vessels, constructed without rivets or solder on that part which is in immediate contact with the ingredients; a coil of copper pipe (drawn, not soldered) traverses the bottom of the apparatus, and is heated by steam, having an elasticity of about 30lbs. to the inch;

at the point where the pipe enters the distillatory apparatus it is necessary to solder the same to the still with silver solder. The charges require from four to six hours to work off. We obtain acetate of lime from America, Sweden, and Norway, and this, being purchased by the chemist, is converted into a very pure acetate of soda, which product is then sent to the acetic acid distiller, who obtains, by the addition of sulphuric acid, the distilled product, acetic acid, and a residue consisting of sulphate of soda and some undecomposed acetate of the same base. This residue is returned to the chemist who purifies acetate of lime, and then the sulphate of soda residue serves to decompose the latter salt. Such is a brief outline of the economy of this manufacture as practised in England, and explains the fact that in very large quantities (say by contracting for 100 carboys) a very pure acetic acid, sp. gr. 1.50, may be procured for sixpence per lb.

ACIDUM ACETICUM—*Acetic Acid, U.S.*—Take of acetate of soda in powder one pound troy, sulphuric acid (sp. gr. 1.845) half a pound troy, red oxide of lead one drachm; pour the sulphuric acid into a glass retort, and gradually add the acetate of soda; then, by means of a sandbath, distil with a moderate heat, into a glass receiver, till the residuum becomes dry, mix the resulting liquor with the red oxide of lead, and again distil with a moderate heat, to dryness; the sp. gravity of acetic acid thus prepared is 1.060, and 100 grains saturate 83.5 grains of bicarbonate of potash; it is wholly volatilized by heat, yields no precipitate with chloride of barium or nitrate of silver, and does not change colour upon the addition of sulphohydric acid. When saturated with ammonia it gives no precipitate with iodide of potassium. If silver be distilled in it, and chlorohydric acid be added afterwards, no precipitate will be produced.—*United States' Pharmacopœia.*

VINAIGRE CONCENTRÉ, VINAIGRE RADICÆ, ACETUM VINI CONCENTRATUM.—Take of powdered crystallized acetate of lead 32 parts, sulphuric acid 18 parts; introduce first the acetate into a glass retort, and then add the sulphuric acid. Mix them well together, and distil with a gentle heat to dryness, then add two parts of powdered binoxide of manganese to the product, and redistil, also to dryness. From 32 parts of acetate 14 parts of acetic acid are obtained of sp. gr. 1.070.—LE CANU.

Acetic acid, like the nitric, chloric, and some others, has not hitherto been obtained free from water, and the greatest degree of concentration we have been able to give it is that in which it contains only the quantity of water equivalent to the atomic weight of another oxidized body, a quantity which amounts to 14.89 per cent. The process prescribed for preparing concentrated acetic acid sometimes tends to deprive it of that water, without which it could not exist; hence, in all such cases, there is a part of the acid decomposed to furnish the water necessary to the constitution of the remainder. The constituent principles of the decomposed portion then form a peculiar, intoxicating, highly inflammatory liquid, called the *Pyro acetic spirit*. The most highly concentrated acid of 1.063 becomes denser by the addition of a certain quantity of water up to a certain point. According to Berzelius, the prime equivalent of this acid is 643.189, oxygen being reckoned 100. Now, the above strong acid consists of one prime of acid and one of water = 1124.79. When it contains three atoms of water, that is, 337.437 parts to 643.189, or 34.41 to 65.59 in 100, it then has taken its maximum density of 1.075, after which the further addition of water diminishes its specific gravity, as the following table of Mollerat shows. His supposed anhydrous or dry acid contains, at 1.0630, 0.114 parts of water.

TABLE OF ACETIC ACID.

Water in 100 parts.	Sp. Gravity.
0.00	1.0630
8.37	1.0742
17.00	1.0770
23.00	1.0791
28.10	1.0763
33.83	1.0742
37.60	1.0728
47.00	1.0658
50.00	1.0637
51.80	1.0630

DR. URE.

ACETUM CANTHARIDIS—*Vinegar of Cantharides, L.*—Take of cantharides rubbed to powder two ounces, acetic acid (sp. gr. 1.048) a pint, macerate eight days, frequently shaking, press and strain.—*London Pharmacopœia.*

ACETUM CANTHARIDES—*Vinegar of Cantharides, E.*—Take of cantharides in powder three ounces, acetic acid (sp. gr. 1.063) five fluid ounces, pyroligneous acid (sp. gr. 1.034) fifteen fluid ounces, euphorbium in coarse powder half an ounce. Mix the acids, add the powders, macerate for seven days, strain, express strongly, and filter, the liquor. —*Edinburgh.*

Cantharides powder yields its active ingredients to boiling water, and more readily to acetic acid, proof spirit, æther, and the fixed or volatile oils; it is doubtful whether such additions as the euphorbium of the Edinburgh Pharmacopœia constitute an improvement; the best menstruum, were it not for its high price in this country, is sulphuric æther; for little is dissolved by it from cantharides, except the active ingredient, and, consequently, ointments and plasters of great energy may be prepared with an ethereal ext.—CHRISTISON.

ACETUM COLCHICI—*Vinegar of Meadow Saffron, L., E., D.*—Take of meadow saffron cormus, fresh sliced, an ounce; distilled water sixteen fluid ounces; proof spirit a fluid ounce; macerate the cormus with the vinegar in a covered glass vessel for three days; afterwards press and strain the liquor and set by, that the dregs may subside; lastly, add the spirit to the clear liquor.—*London, Edinburgh, Dublin.*

It has been generally supposed that the virtue of meadow saffron resides in a peculiar vegetable alkali similar to that contained in white hellebore, and called veratria; according, however, to the late experiments of Hesse and Geiger, it is an alkali, differing from veratria, and to which they have given the name of *colchicia*.—PHILLIPS.

ACETUM COLCHICI—*Vinegar of Colchicum, U.S.*—Take of colchicum root, bruised, two ounces; distilled vinegar two pints; alcohol a fluid ounce.

The directions for preparing are the same as the London Pharmacopœia. Vinegar of colchicum may also be prepared by macerating the colchicum root in coarse powder with a pint of distilled vinegar for two days; then putting the mixture into an apparatus for displacement, gradually pouring in distilled vinegar until the quantity of filtered liquor equals two pints; add lastly, the alcohol. In the above processes diluted acetic acid may be substituted for distilled vinegar. —UNITED STATES' PHARMACOPŒIA.

VINAIGRE COLCHIQUE—*Vinegar of Colchicum, P.*—Take of dried colchicum root, bruised, one part; strong vinegar twelve parts; macerate and strain.—FRENCH CODEX.

It is incompatible with alkalies, their carbonates, the alkaline earths, and their carbonates or any substance on which vinegar is capable of exerting an action.—PHILLIPS.

ACIDUM BENZÖICUM—*Benzoic Acid, L. and E.*—Take of benzoin a pound. Put the benzoin into a proper vessel placed in sand, and the heat being gradually raised, sublime until nothing more rises; press that which is sublimed, wrapped in bibulous paper, and separate it from the oily part; afterwards again sublime it.—*London.*

Benzoin is a balsam or resinous exudation from the styrax bezoin of Sumatra; this is the only plant which yields it in sufficient quantity to be worth collecting from.—PHILLIPS.

ACIDUM BENZÖICUM—*Benzoic Acid, D.*—Take of benzoin five parts; fresh-burnt lime and muriatic acid, of each one part; water 200 parts; triturate the benzoin with the lime; boil them for half an hour, with constant stirring; let the vessel rest and pour off the liquor when cold; boil the residue with the rest of the water, and pour off the cold liquor; evaporate the liquors to one half; filter through paper, and add the acid gradually to the cold fluid; pour away the liquid, wash the powder with a little cold water, dry it with a gentle heat, and sublime benzoic acid from it in a proper vessel with a gentle heat.—*Dublin.*

ACIDUM BENZÖICUM, *Benzoic Acid, U.S.*—Take of benzoin in coarse powder a pound; put the benzoin, previously thoroughly mixed with an equal weight of fine sand, into a suitable vessel, and, by means of a sandbath, with a gradually increasing heat, sublime until vapours cease to rise; deprive the sublimed matter of oil by pressure in bibulous paper, and again sublime.—*United States.*

ACIDE BENZOIGNE SUBLIMÉE, *P.*—This is prepared the same way as the last. This acid when pure is colourless. It crystallizes in soft and rather elastic crystals which have scarcely any smell; it is, however, stronger when the acid is prepared by sublimation than by precipitation; its taste is rather aromatic and penetrating than sour, and its vapour is exceedingly irritating to the air passages; it is combustible, burning with a yellow flame. It is very soluble in about 200 parts of cold water, dissolves in about 25 parts of water, and is very soluble in alcohol and solution of potassa or lime water, from which it is precipitated by hydrochloric acid.

The process of the London and Edinburgh Colleges is the simplest and yields the largest quantity; and, though the product is contaminated with empyreumatic oil, this is probably no disadvantage for medicinal purposes. An acid chemically pure is prepared from such process as that of the Dublin College, which consists in forming a watery solution of benzoate of lime, precipitating the benzoic acid by muriatic acid and subliming the precipitate.—CHRISTISON.

The Flores benzoes viâ humida parati are chemically pure, and may be extracted from benzoic resin, according to the formula given in the Pharmacopœias of Ferrara, France (of the year 1818), and Poland, by means of lime; whilst those of Prussia, Denmark, Edinburgh, Hanover, and Russia direct the use of soda; and, according to some Pharmacopœias of Southern Germany, by means of carbonate of potassa. The Pharmacopœias of London, Dublin, Amsterdam, Saxony, Wurtemburg, Sardinia, and Spain, prescribe sublimation. The directions given in our Pharmacopœias, notwithstanding their brevity, are far from concise; everything is left to the manufacturer, who must

manage as well as he can, since no hints have been furnished for the purpose of facilitating the execution of the process; the tests given there also are not sufficiently precise, since what is there stated in reference to benzoic acid applies also to hippuric acid. It is stated that, "if carefully treated, it should evaporate completely with a peculiar odour," rather it should have been with the odour of benzoin. —ULEX.

Benzoic acid is incompatible with such substances as neutralize, or combine with acids in general, as alkalies, their carbonates, metallic oxides, &c. It is supposed to be stimulant and expectorant, but is rarely used except in the tinctura camphora composita.

ACIDUM CITRICUM—*Citric Acid, L. and D.*—Take of the juice of lemons four pints; prepared chalk four ounces and a half; diluted sulphuric acid twenty-seven fluid ounces and a half; distilled water two pints; add the chalk gradually to the juice made hot, and mix; set by, that the powder may subside, afterwards pour off the supernatant liquor. Wash the citrate of lime frequently with warm water, then pour upon it the diluted acid, and boil for a quarter of an hour; press the liquor strongly through a linen cloth, and strain it. Evaporate the strained liquor with a gentle heat, and set by, that crystals may be formed. Dissolve the crystals, that they may be pure again, and a third time, in water, and as often strain, boil down, and set aside.—*London and Dublin.*

The juice of lemons may be considered as an aqueous solution of citric acid, nearly free from any other, but mixed with a considerable quantity of mucilage.—PHILLIPS.

ACIDUM CITRICUM—*Citric Acid, E.*—Take of lemon juice four pints; prepared chalk four ounces and a half, or a sufficiency; diluted sulphuric acid thirty-six fluid ounces, or in the same proportion the chalk required; boil the lemon juice, let it rest, pour off the clear liquor, boil this again, and add the chalk to it while hot by degrees, till there is no more effervescence, and the liquid ceases to taste acid. Collect the precipitate and wash it with hot water, till the water passes colourless. Squeeze the residuum in a powerful press; mix it uniformly with two pints of distilled water; and then add the sulphuric acid by degrees, with constant stirring. Try whether a small portion of the liquid, when filtered, gives with solution of nitrate of baryta a precipitate almost entirely soluble in nitric acid; and, if the precipitate is not nearly all soluble, add a little citrate of lime to the whole liquor till it stand this test; separate now the clear liquor by subsidence or filtration; washing the insoluble matter with cold water, and adding the washings to the liquor. Concentrate with a gentle heat till crystals form on the surface; set the liquor aside to cool and crystallize till they are colourless.—*Edinburgh.*

The United States' Pharmacopœia gives no directions for preparing citric acid.

ACIDE CITRIQUE, *P.*—This is prepared by directions the same as the London Pharmacopœia, except that the lemon juice clarifies itself in the first place by *fermentation* tests. Citric acid is colourless, and entirely dissipated by a red heat. A solution of four parts in water is not precipitated by carbonate of potash; when incinerated with red oxide of mercury no ash is left, or a mere trace; the precipitate thrown down in its solution, after saturation with sesquicarbonate of ammonia, by acetate of lead, or muriate of baryta, is soluble in dilute nitric acid, not precipitated by any salt of potash except the tartrate.

One hundred parts of citric acid require 75 of cold and 50 parts of boiling water to dissolve them. The solution, like lemon juice, becomes mouldy by keeping. One drachm of the crystals of this acid saturates very nearly two drachms of crystallized carbonate of soda. About eleven drachms and a half of citric acid dissolved in a pint of distilled water give a solution equal in strength to lemon juice. It is incompatible with all alkaline solutions and substances, converting them into citrates, as ammonia, potash, soda, lime, magnesia, &c. It decomposes the alkaline, earthy, and metallic carbonates, most acetates, the alkaline sulphurets, and soaps. It is also incompatible with tartrate of potash, which it converts into citrate and bitartrate of potash.—PHILLIPS.

The dose of citric acid varies from 20 grains to a drachm. For effervescing powders 30 grains may be used, and the equivalent quantities of the alkaline salts are 50 grains of carbonate of potash, 42 sesquicarbonate of soda, or 30 sesquicarbonate of ammonia.—CHRISTISON.

Its atomic weight is 8.375; compared to oxygen, 1,000.

ACIDUM HYDROCHLORICUM—*Hydrochloric Acid, L.*—Take of chloride of sodium, dried, 2 pounds, sulphuric acid 20 ounces by weight, distilled water 24 fluid ounces; add the acid, first mixed with 12 fluid ounces of the water, to the chloride of sodium put into a glass retort; pour what remains of the water into a receiver; then, the retort being fitted to it, let the acid, distilled in a sandbath, pass over into this water, the heat being gradually increased.—*London.*

The sp. gr. of this acid is 1.16; 132 grains of crystals of carbonate of soda are saturated by 100 grains.—PHILLIPS.

ACIDUM MURIATICUM—*Hydrochloric Acid of Commerce, E.*—Density at least 1180.

ACIDUM MURIATICUM PURUM—*Pure Muriatic Acid, E.*—Purify muriate of soda by dissolving it in boiling water, concentrating the solution, skimming off the crystals as they form on the surface, draining from them the adhering solution, and washing the crystals slightly with cold water; take of this salt, previously well dried, of pure sulphuric acid, and of water, equal weights; put the salt into a glass retort, and add the acid previously diluted with a third part of the water, and allowed to cool; fit on a receiver which contains the rest of the water; distil with a gentle heat by means of a sandbath or a naked coal-gas flame so long as any liquid passes over, preserving the receiver cool by snow or a stream of cold water. Density 1170.—*Edinburgh.*

ACIDUM MURIATICUM—*Muriatic Acid, D.*—Take of dried chloride of sodium 100 parts, sulphuric acid 87 parts, water 120 parts; to the chloride contained in a retort add the acid previously diluted with half of the water, and put the rest of the water into the receiver; distil from a sandbath, with a gradually increasing heat till the retort becomes red; 100 grains neutralize 124 grains carbonate of soda.—*Dublin.*

ACID MURIATICUM—*Muriatic Acid, U.S.*—Aqueous solution of chlorohydric acid gas of the specific gravity 1.160.—*United States.*

ACIDE CHLOROHYDRIQUE, *P.*—Take 3 parts of well-dried sea salt, 3 parts by weight of sulphuric acid, sp. gr. 1.842, and 1 part of water; introduce the salt into a retort, and add the acid previously diluted; distil by sand heat gradually raised, until no more gas is given off, and condense by means of a Woulf's apparatus very carefully cooled. The density of this acid is 1.170, and 22° Beaumé.—*French Codex.*

Pure hydrochloric acid is colourless, entirely vaporised by heat (proving that no fixed impurity is dissolved), not precipitated by ammonia, sesquicarbonate of ammonia, or chloride of barium, and without action on gold leaf or solution of sulphate of indigo (showing the absence of free chlorine).—PHILLIPS.

Muriatic acid exists, when pure and under ordinary atmospheric pressure, in the form of a colourless gas, of a suffocating acrid odour; its density is 1269.5; it is liquified under a pressure of 40 atmospheres; it consists of equal volumes of chlorine and hydrogen—that is, one equivalent, or one part by weight of hydrogen, and one equivalent, or 35.84 parts of chlorine. This gas has a very powerful affinity for water, which at 40° absorbs 480 times its volume with the evolution of considerable heat. The solution thus obtained is muriatic acid in its ordinary or liquid state. *Commercial* muriatic acid is a transparent liquid of a yellow colour, not recognised in the Pharmacopœias of London and Dublin; its density varies from 1180 to 1216.—CHRISTISON.

Hydrochloric acid is a powerful poison, either when swallowed in the liquid form or when inhaled in the state of gas; in a case of poisoning, the antidotes are chalk, whiting, magnesia, or its carbonates, and soap; and, in the absence of these, oil, the bicarbonated alkalies, milk, white of egg, or demulcents of any kind.—PEREIRA.

ACIDUM HYDROCHLORICUM DILUTUM — *Diluted Hydrochloric Acid, L.*—Take of hydrochloric acid (sp. gr. 1.160) 4 fluid ounces, distilled water 12 fluid ounces. Mix. The density of this acid is 1.046.—*London.*

ACIDUM MURIATICUM DILUTUM—*Diluted Muriatic Acid, E.*—Take of pure muriatic acid (sp. gr. 1.160) 4 fluid ounces, distilled water 12 fluid ounces. Mix. The density of this acid is 1.050.—*Edinburgh.*

ACIDUM HYDROCHLORICUM DILUTUM—*Diluted Muriatic Acid, D.*—Take of hydrochloric acid 10 measures, distilled water 11 measures. Mix. The density of this acid is 1.080.—*Dublin.*

It might have been desirable that the colleges had not differed in the degree of dilution they recognise.

ACIDUM MURIATICUM DILUTUM—*Diluted Muriatic Acid.—United States.*

In every way similar to the London Pharmacopœia.

ACIDUM HYDROCYANICUM DILUTUM—*Diluted Hydrocyanic Acid, L.*—Take of ferrocyanide of potassium 2 ounces, sulphuric acid one ounce and a half, distilled water a pint and a half; mix the acid with four fluid ounces of the water, and to these, when cooled and put into a glass retort, add the ferrocyanide of potassium, first dissolved in half a pint of the water. Pour 8 fluid ounces of the water into a cooled receiver; then, the retort being fitted on, let 6 six fluid ounces of acid pass into this water, distilled with a gentle heat in a sandbath; lastly, add 6 more fluid ounces of distilled water, or as much as may be sufficient, that 12.7 grains of nitrate of silver, dissolved in distilled water, may be accurately saturated by 100 grains of this acid. Diluted hydrocyanic acid may be otherwise prepared, when it is to be more quickly used, from 48 grains and a half of cyanide of silver, added to a fluid ounce of distilled water, mixed with 39 grains and a half of hydrochloric acid. Shake all these in a well-stoppered vial; and, after a short interval pour

off the clear liquor into another vessel. Keep this for use, the access of light being prevented.—*London.*

This contains 2 per cent. of real acid.

ACIDUM HYDROCYANICUM—*Hydrocyanic Acid, Diluted with about 30 parts of Water, E.*—Take of ferrocyanide of potassium 3 ounces, sulphuric acid 2 fluid ounces, water 16 fluid ounces; dissolve the salt in 11 fluid ounces of the water, and put the solution into a mattrass with a little sand; add the acid previously diluted with 5 fluid ounces of water and cooled; connect the mattrass with a refrigeratory; distil with a gentle heat by means of a sandbath, or naked gas flame, till 14 fluid ounces pass over, or till the residuum begins to froth up. Dilute the product with distilled water till it measures 16 fluid ounces. —*Edinburgh.*

This contains about 3.3 per cent. of real acid.

ACIDUM PRUSSICUM—*Prussic Acid, D.*—Take of cyanide of mercury 1 ounce, muriatic acid (sp. gr. 1.160) 7 fluid drachms, water 8 fluid ounces; distil 8 fluid ounces from a retort into a cold receiver. Preserve the product in a well-closed phial in a cold and dark place.

Its density is 998, and it contains 3.3 per cent. of real acid.

ACIDUM HYDROCYANICUM—*Hydrocyanic Acid, Cyanohydric Acid, U.S.*—Exactly similar to the London Pharmacopœia.

ACIDE HYDROCYANIQUE MEDICINAL—*Medicinal Hydrocyanic Acid, P.*—Take 1 volume of anhydrous hydrocyanic acid and 6 volumes of distllled water, or 1 part by weight of acid and 8½ parts of water.—*French Codex.*

This contains 10½ per cent.

In preparing the anhydrous acid by Gay Lussac's process, you put into a retort three parts of powdered cyanide of mercury, and connect it with a tube two feet in length, one third of which nearest the retort is filled with fragments of marble, and the other two thirds with chloride of calcium; on the cyanide of mercury you then pour two parts hydrochloric acid sp. gr. 1.170, and apply a gentle heat. Any undecomposed hydrochloric acid is stopped by the marble, and all the moisture by the chloride of calcium. During this process the chlorine of the hydrochloric acid combines with the mercury of the cyanide to form chloride of mercury, while the hydrogen of the acid takes the cyanogen of the cyanide, and forms hydrocyanic acid, which vaporizes, and is condensed in the receiver cooled with ice. Any portion of hydrocyanic acid which may condense on the marble is to be volatilized by a gentle heat and sent in vapour to the receiver.—SOUBEIRAN.

The properties of the anhydrous acid thus obtained are, that it is a colourless liquid with a strong odour; its taste is first cooling and afterwards burning, and it is very poisonous. Its sp. gr. is 0.6969; it boils at about 80°, and becomes solid at 5° of Fahrenheit; it acts feebly as an acid, but reddens litmus paper, the blue colour of which returns as the acid evaporates. It is extremely volatile; and, when a drop on paper is exposed to the air, the evaporation of a part of it renders the remainder so cold that it solidifies; and this effect is produced even when the temperature of the air is 68°. It combines with water and alcohol in all proportions.—PHILLIPS.

Diluted hydrocyanic acid is perfectly colourless (decomposed acid is frequently, but not always, coloured), entirely dissipated by heat; showing the absence of fixed impurities. The presence of metallic matter is recognised by hydrosulphuric acid, which does not discolour the pure acid. It turns litmus of a slight fugacious red; if it strongly redden litmus it must contain some other acid, most likely the sulphuric muriatic; however, it must be remarked that a faint impregnation of an organic acid is the reverse of objectionable, as rendering the hydrocyanic acid less liable to decay, although, at the same time, it creates a difficulty in the determination of the strength. (Hydrocyanic acid, perfectly free from any other acids, cannot be preserved; it decomposes spontaneously, whether exposed to the light or kept in the dark; whether in open or in closed vessels it assumes a dark brown tint, and, if concentrated, in some degree solidifies into a brown jelly. The admixture of a trace of sulphuric or hydrocyanic acid prevents this decomposition.—LIEBEG.)

The presence of any foreign acid is most easily determined by the hydrargyro-iodo-cyanide of potassium. This salt is easily formed by adding a concentrated solution of lucyanide of mercury to a solution of iodide of potassium; a precipitate of white or pearly crystalline plates of this salt is immediately formed. If a small portion of this salt be placed in diluted hydrocyanic acid, no change is observed unless some foreign acid be present; in the latter event the red biniodide of mercury immediately makes its appearance. Nitrate of baryta occasions a precipitate (sulphate of baryta) insoluble in nitric acid if sulphuric acid be present. Hydrochlaric acid is recognised by nitrate of silver, which forms therewith white chloride of silver, insoluble in boiling nitric acid, whereas the white cyanide of silver dissolves completely. Hydrocyanic acid may be detected by its characteristic odour, but care must be taken not to confound it with the odour of bitter almond oil, as many do, for that is decidedly different, and depends much more on a true essential oil than upon the concomitant, hydrocyanic acid. A much better test than its odour is the action of sulphate of iron. If a few drops of caustic potash be added to the fluid containing hydrocyanic acid, and then a solution of green vitriol, or any sulphate of iron which contains some protoxide of that metal, a dirty blue or greenish blue precipitate forms, which becomes bright prussian blue on the addition of a little sulphuric acid to redissolve the intermingled oxide of iron. Perhaps the most delicate test for the presence of hydrocyanic acid is nitrate of silver: it causes a white precipitate of cyanide of silver, which is soluble in boiling nitric acid. By this latter characteristic cyanide of silver is distinguished from other white insoluble salts of this metal.—CHRISTISON.

As hydrocyanic acid readily undergoes decomposition, it is not likely to be met with in bodies which have been interred some days. It has, however, been recognised in one case, seven days after death, notwithstanding that the trunk had not been buried, but had been lying in a drain. In recent cases the acid is readily distinguished by its odour, with which, in some instances, the whole body is impregnated. The tests for this acid already mentioned will sometimes detect the poison in the filtered contents of the stomach; but the foreign matters present may occasionally prevent their characteristic action. The best mode of proceeding in that case is, to introduce them into a tubulated retort, to add some diluted sulphuric acid to neutralize any ammonia which might be generated by the process of putrefaction, and to distil by means of a vapour or water bath; then apply the tests already mentioned.—PAREIRA.

Hydrocyanic acid is in the highest degree poisonous: it acts upon the living organism with exceeding rapidity. Its rapid action upon the blood is very remarkable. Comparatively large quantities of hydrocyanic acid in aqueous solution may be taken into the digestive apparatus without producing any very perceptibly noxious effects, whilst the same quantities of the acid inhaled as vapour cause immediate death. Dilute hydrocyanic acid being used medicinally as a very powerful remedy in various diseases, it is highly important to the physician to obtain this preparation invariably of the same strength. The following is the best method to test hydrocyanic acid as to its proportional amount of anhydrous acid. A certain definite amount of the acid to be tested is weighed in an appropriate glass vessel, and mixed with solution of nitrate of silver as long as there is any precipitate formed; the fluid is then strongly agitated until it clears, and the white precipitate assumes a curdy appearance; the precipitate is then collected upon a weighed filter, and carefully washed and dried. The increase of weight found upon weighing the filter denotes the amount of cyanide of silver obtained. Every grain of anhydrous hydrocyanic acid yields in this manner five grains of cyanide of silver. One hundred grains of officinal hydrocyanic acid yield ten grains of cyanide of silver, if the acid contains two per cent. of anhydrous acid; fifteen grains, if it contains three per cent., &c. The application of this method enables us to prepare dilute hydrocyanic acid, so as to contain any given or required proportional amount of anhydrous acid, by mixing the strong acid (after having thus determined its exact amount of anhydrous acid) with the amount of water required. Thus, suppose, for instance, that one hundred grains of hydrocyanic acid have yielded forty-five grains of cyanide of silver, it follows that the acid contains nine grains of anhydrous acid to ninety-one grains of water. To produce an officinal hydrocyanic acid containing two per cent. of anhydrous acid would require the addition of nine grains of anhydrous hydrocyanic to 441 grains of water. Now, as we see that the acid contains already ninety-one grains of water in every 100 grains, it is evident that we need only add 350 grains of water to every 100 grains of the acid in order to prepare an acid of the desired strength—(441—91=350).—LIEBEG.

Hydrocyanic acid is frequently met with, having a slight green colour, which is only owing to the carelessness of the preparer allowing a portion of the contents of the retort (during the violent ebullition that occurs if the fire is not properly regulated) to be thrown into the neck of the retort, and so carried into the receiver: it does, therefore, in no way alter the strength or efficiency of the acid. When hydrocyanic acid is prepared on a large scale, the best way is to distil over a very strong acid, say with 12 per cent., and dilute afterwards with distilled water to the proper officinal strength. In pouring this acid from one vessel to another great care should be taken, and the ounce bottles sold so generally by the wholesale houses should be filled in a cool place, with care and expedition, for the acid is so volatile that a very material loss occurs when these precautions are neglected.—*Editor.*

If ferrocyanide of potassium be distilled with sulphuric acid, there is always a slight quantity of formic acid formed; its amount, however ($\frac{1}{210}$ per cent. on an average), is so very slight that there is no reason for apprehending that the preparation will suffer in quality by its presence; and it may even be considered as a very proper addition, because the prussic acid thereby becomes one of the least changing pharmaceutico-chemical preparations we have. Such prussic acid may during the whole of summer be exposed to the hottest sun rays *without undergoing the least change.* Before leaving this subject, we may add a short comparison of the different contents of pure prussic acid, when prepared according to different legalized prescriptions.

ACIDUM HYDROCYANICUM MEDICINALE, PHARMACOPŒIÆ.

	Contents of Prussic Acid in 100 parts.
Americæ	2.0
Austraensis, Badensis, Bataviæ, Borussiæ	2.5
Bavaria	4.0
Hessia	18.0 to 20.0
Londinensis	2.0
Dublinensis	3.3
Edinburgensis	3.3
Hamburgensis	2.0
Saxonicæ	1.9
Parisiensis	10.5
Scheel's strength	5.0

—ULEX.

Hydrocyanic is well known to be a very powerful narcotic poison, the most powerful, perhaps, which modern chemistry has hitherto yet disclosed. It induces coma and convulsions, especially of the muscles of respiration, constituting phenomena not unlike those which characterize some varieties of the epileptic paroxysm. Death commonly ensues in the human subject within five minutes; but sometimes it is delayed for three quarters of an hour; and, on the other hand, there can be no doubt, from repeated observation on the lower animals, that it might be induced by large doses, especially of the pure acid, in the course of a few seconds. Death has been occasioned in man by a mixture containing scarcely one grain of pure anhydrous acid. Congestion of the brain is commonly found after death, more rarely exhaustion of muscular irritability; and in every instance of rapid death the poison may be found in the stomach for some days afterwards. For a poison so speedy in its operation scarcely any antidote can be practically available; and it may be doubted whether any true and effectual antidote is yet known. The inhalation of ammonia or diluted chlorine, combined with cold affusion of the head and chest, and artificial respiration, are the most efficacious. Various other remedies have also been recommended, as turpentine, sulphate of iron, with an alkaline carbonate, hydrated peroxide of iron, &c., but are not considered so effectual.—CHRISTISON.

ACIDUM NITRICUM—*Nitric Acid, L.*—Take of nitrate of potash, dried, sulphuric acid, sp. gr., each two pounds; mix in a glass retort; then let the acid distil in a sandbath.—*London.*

The sp. gr. of this acid is 1.500. About 217 grains of the crystals of carbonate of soda are saturated by 100 grains of this acid, which contain, therefore, about 81 grains of real acid.—PHILLIPS.

ACIDUM NITRICUM PURUM—*Pure Nitric Acid, E.*—Purify nitrate of potash, if necessary, by two or more crystallizations, till nitrate of silver does not precipitate its solution in distilled water. Put into a glass retort equal weights of this purified salt, and of sulphuric acid. Distil into a cooled receiver with a moderate heat from a sandbath or naked gas flame, so long as the fused material gives off vapour. The pale yellow acid thus obtained may be rendered colourless, should this be desired by heating it gently in a retort.—*Edinburgh.*

This acid is colourless or pale yellow. Sp. gr. 1.500; when diluted with distilled water it is not precipitated by solution of nitrate of baryta or of nitrate of silver.

ACIDUM NITRICUM—*Nitric Acid, D.*—Mix in a glass retort 100 parts of nitrate of potash and 97 of commercial sulphuric acid, and distil into a receiver connected with pneumatic apparatus till the residuum, after concreting, again liquefies. Sp. gr. 1490.—*Dublin.*

ACIDUM NITRICUM—*Nitric Acid* of the sp. gr. 1.500, *U.S.*

ACIDE NITRIQUE—*Nitric Acid, P.*—Take 3 parts each of powder nitrate of potash and 2 of sulphuric acid.—*Paris Codex.*

Put into a glass retort connected with a receiver (having a glass tube arranged so as to convey the uncondensed gases into the chimney), and very carefully cooled; lute all the joints with grease; heat very gradually that the acid may distil drop by drop, until the retort is red hot and no more vapours arise.—SOUBEIRAN.

The sp. gr. of this acid is 1.412.

Nitric acid is colourless when pure, emits grey fumes of an irritating, peculiar odour, and possesses an intensely acid, corrosive taste; it quickly turns the skin yellow. The density of the strongest acid is variously stated, but probably 1.500 is the densest which can be obtained free of nitric acid; when impregnated with nitrous acid, however, it may be got so heavy as 1.540 or upwards. The readiest mode of distinguishing nitric acid, on the small scale, from other mineral acids is by its action on morphia, which it immediately turns orange or yellow. The most minute portion is sufficient for applying this test. The ordinary nitric acid of the shops (nitric acid of commerce—ED.) differs somewhat from that just described; it is commonly colourless, fumes but slightly, and undergoes little change under exposure to light: the reason is, that it contains a greater proportion of water, as is shown at once by its density. Its usual density is from 1380 to 1390; the latter of which contains about 54.5 per cent. of anhydrous acid. This difference of strength between it and the concentrated acid must be carefully kept in view in many chemical and pharmaceutical operations.—CHRISTISON.

Nitric acid, as found in the shops, has frequently a yellowish tint, owing to the presence of an unimportant quantity of nitrous acid, formed by the partial decomposition of a little of the nitric acid during its preparation; but, if it be moderately heated in a retort, nitric oxide is expelled, and it is rendered colourless. If pure nitrate of potash be employed, the nitric acid obtained is perfectly free from all admixture except a little nitrous acid, which, as already noticed, is quite unimportant. The total evaporation proves that no fixed impurity is held in solution. Nitrate of silver gives no precipitate with acid diluted with eight times its volume of distilled water, when chlorine or its compounds are absent. Sulphuric acid is best detected by testing similarly diluted acid with nitrate of baryta, which will throw down a precipitate if sulphuric acid or a sulphate be present. Nitric acid is incompatible with sulphate of iron, oxides, earths, alkalis, and their carbonates; it decomposes the sulphurets, the solution of acetate of lead, and acetate of potash, and acts strongly upon spirits of wine.—PHILLIPS.

Nitric acid always contains water; it has never been obtained in the dry state; the concentrated acid does not usually act on the metals, but, if water be added, the acid becomes partly decomposed, and deep red vapours, nitrous acid gas, appear, while the newly-formed oxide unites with the undecomposed acid to form a nitrate.—COLLIER.

Nitric acid is a very dangerous corrosive poison, producing death sometimes very quickly; its proper antidote is magnesia, carbonate of magnesia, chalk, or bicarbonate of potash, or of soda.—CHRISTISON.

The nitrates are known by deflagrating when thrown on a redhot cinder or charcoal, and, when mixed with sulphuric acid and copper turnings, they generate binoxide of nitrogen, which is readily distinguished by its blackening a solution of sulphate of protoxide of iron (ferri sulph. pur.). This last-mentioned property enables us to recognise very minute portions of the nitrate.—PEREIRA.

The equivalent of nitric acid is 54.15.—TURNER.

Since nitrate of soda has been so abundantly imported into Europe from Peru, it has been employed by many manufacturers in preference to nitrate of potash for the extraction of nitric acid, because it is cheaper, and because the residuum of the distillation, being sulphate of soda, is more readily removed by solution from glass retorts, when a range of these set in a gallery furnace is the apparatus employed.—DR. URE.

A table of doses, actions, and uses, will be given at the end of the Conspectus.—EDITOR.

ACIDUM NITRICUM DILUTUM—*Diluted Nitric Acid, L.*—Take of nitric acid (sp. gr. 1.500) a fluid ounce, distilled water nine fluid ounces; mix.—*London.*

The specific gravity of this dilute acid is 1.080; a fluidrachm, weighing 59 grains, contains 8.4 grains of the concentrated acid, and saturates 18.2 grains of crystallized carbonate of soda. A fluidrachm of the acidum nitricum weighs 82 grains, and saturates 178 grains of the carbonate; the strength, therefore, of the diluted acid is to that of the concentrated, very nearly, as 10 to 97 by measure, and as 10 to 70 by weight.—PHILLIPS.

ACIDUM NITRICUM DILUTUM—*Diluted Nitric Acid, E.*—Mix together one fluid ounce of distilled water, and five fluid drachms and a half of commercial nitric acid; specific gravity of this dilute acid is 1077.—*Edinburgh.*

ACIDUM NITRICUM DILUTUM—*Diluted Nitric Acid, D.*—Mix together three parts, by measure, of pure nitric acid, and four parts of distilled water, avoiding the fumes; specific gravity 1280.—*Dublin.*

This contains about 38 per cent. of anhydrous acid.

ACIDUM NITRICUM DILUTUM—*Diluted Nitric Acid, U.S.*—Take one fluid ounce of nitric acid, sp. gr. 1.500, and nine fluid ounces of distilled water; mix them in a glass vessel. The specific gravity of this acid is 1.080.—*United States.*

EAU FORTE—DILUTED NITRIC ACID.—Take of nitric acid, sp. gr. 1.412, one part, distilled water three parts. Mix with care.—JOURDAN.

ACIDUM NITROMURIATICUM—*Nitromuriatic Acid, D.*—Take of nitric acid, sp. gr. 1490, one part by measure, muriatic acid two parts by measure; mix them in a cooled vessel, and preserve the mixture in a cool dark place, in a well-closed bottle.—*Dublin.*

ACIDUM NITROMURIATICUM—*Nitromuriatic Acid, U.S.*—Take of nitric acid, of sp. gr. 1500, four fluid ounces muriatic acid, of sp. gr. 1.16, eight fluid ounces; mix them in a glass vessel, and, when effervescence has ceased, keep the product in a well-stoppered glass bottle, in a cool and dark place.—*United States.*

ACIDE CHLORHYDRONITRIQUE—EAU RÉGALE—*Nitromuriatic Acid, P.*—Take of sal ammoniac, in powder, one part, diluted nitric acid, p.p., three parts; digest with a gentle heat, and decant.—*Paris Codex.*

This is a mixture of nitric acid, hydrochloric acid, nitrous acid, chlorine, and water.—SOUBEIRAN.

Nitromuriat acid has a yellow colour, and the most remarkable property of dissolving gold and platinum, metals that are insoluble

in either nitric or hydrochloric acid separately. It is easily distinguished from other acids by its suffocating odour of chlorine. It is recognised by its precipitating a solution of nitrate of silver, the precipitate being insoluble in nitric acid, but soluble in ammonia. It readily parts with its chlorine, unless preserved in very close bottles; and, if concentrated acids be used for making it, the loss of chlorine is rapid; so that dilution with one or two volumes of water is advisable when it must be kept long.

ACIDUM PHOSPHORICUM DILUTUM—*Diluted Phosphoric Acid, L.*—Take of phosphorus an ounce, nitric acid 4 fluid ounces, distilled water 10 fluid ounces; add the phosphorus to the nitric acid mixed with the water in a glass retort placed in a sandbath; then apply heat until 8 fluid ounces are distilled. Put these again into the retort, that 8 fluid ounces may again distil, which are to be rejected. Evaporate the remaining liquor in a capsule made of platina, until of the whole only 2 ounces and 6 drachms remain; lastly, add to the acid, when it has cooled, as much distilled water as may be sufficient to make it accurately measure 28 fluid ounces.—*London.*

The specfic gravity of this acid is 1.064; 42 grains of carbonate of soda are saturated by 100 grains, and nothing is thrown down, showing, therefore, that 100 grains contain 10.5 per cent. of real phosphoric acid.—PHILLIPS.

Phosphoric acid is obtained in a state of purity either by decomposing earth of bones with sulphuric, or by oxidating phosphorus with nitric acid. It may be made by heating nitric acid in a covered platinum crucible, and projecting the phosphorus in successive small portions under the cover; but if it be wished to operate on a large quantity of phosphorus at once, it is better to dilute the acid as the London College directs, otherwise the action is violent and ungovernable. The chemical changes that ensue consist essentially in the decomposition of the nitric acid, the oxidation of the phosphorus by part of its oxygen, and the escape of the remaining oxygen along with the azote in the form of nitric oxide gas; it also appears, however, that some water is decomposed at the same time; the hydrogen of which unites with some of the azote of the nitric acid to form ammonia. In order to remove this ammonia, as well as any excess of nitric acid, the product must be evaporated to dryness, and then heated to redness. From earth of bones phosphoric acid may be obtained more cheaply, by decomposing the solution of acid phosphate of lime by sesquicarbonate of ammonia, concentrating the filtered fluid, which contains phosphate of ammonia, with a little sulphate, and, finally, heating the residuum to dryness in a platinum crucible, upon which the ammonia of the phosphate is expelled together with the sulphate of that alkali.—CHRISTISON.

Phosphoric acid obtained by the college process is a colourless, inodorous, acid fluid; it acts strongly upon litmus paper, but, although evaporated so as to become a very dense fluid, it does not destroy animal or vegetable fibre like sulphuric acid; it evinces powerful acid properties by the permanent saline compounds which it forms with alkalies, earths, and metallic oxides. When carefully neutralized by pure carbonate of potash or soda, it forms a solution in which no precipitate or change of colour is produced when a stream of hydrosulphuric acid gas is passed through it, but which is precipitated white by a solution of acetate of lead, and yellow by nitrate of silver. The first precipitate, the phosphate of lead, dissolves completely on the addition of nitric or phosphoric acid; the second, the phosphate of silver, is dissolved by both these acids and by ammonia.—COLLIER.

Phosphoric acid is liable to be adulterated with lime, the absence of which is ascertained when carbonate of soda added to saturation gives no precipitate,—that no hydrochloric acid nor any chloride is held in solution is proved by nitrate of silver giving no precipitate which is insoluble in nitric acid; and the absence of sulphuric acid is proved by there being no precipitate yielded by chloride of barium, which is insoluble in nitric acid.—PHILLIPS.

ACIDUM SULPHURICUM—*Sulphuric Acid, L.*—It is free from colour; its specific gravity is 1.845. What remains after the acid has been distilled to dryness does not exceed the 400th part of its weight.—*London.*

ACIDUM SULPHURICUM PURUM—*Pure Sulphuric Acid, E.*—If commercial sulphuric acid contain nitrous acid, heat eight fluid ounces of it with between ten and fifteen grains of sugar at a temperature not quite sufficient to boil the acid, until the dark colour at first occasioned shall nearly or altogether disappear. This process removes nitrous acid. Other impurities may be removed by distillation, which, on the small scale, is easily managed by boiling the acid with a few platinum chips in a glass retort by means of a sandbath or gas flame, rejecting the first half ounce.—*Edinburgh.*

Density 1845; colourless dilution causes no muddiness; solution of sulphate of iron is not reddened at the line of contact when poured over it.

ACIDUM SULPHURICUM PURUM—*Pure Sulphuric Acid, D.*—Distil commercial acid in a white glass retort and receiver without lute, rejecting the first twelfth and moderating the ebullition with platinum chips in the retort.—*Dublin.*

Density 1845. To be kept in well-closed vessels.

ACID SULPHURICUM DILUTUM—*Diluted Sulphuric Acid, L.*—Take of sulphuric acid a fluid ounce and a half, distilled water 14 fluid ounces and a half; add the acid to the water gradually, and mix.—*London.*

The sp. gr. of this acid is about 1.11: a fluidrachm contains nearly 10 grains of the strong acid, and will saturate 28 grains of crystallized carbonate of soda.

ACIDUM SULPHURICUM DILUTUM—*Diluted Sulphuric Acid, E.*—Take of sulphuric acid (sp. gr. 1.840) one fluid ounce, distilled water thirteen fluid ounces; mix them together. Density about 1.090.—*Edinburgh.*

ACIDUM SULPHURICUM DILUTUM—*Diluted Sulphuric Acid, D.* Take of sulphuric acid one part, distilled water seven parts. Mix.—*Dublin.*

ACIDUM SULPHURICUM DILUTUM—*Diluted Sulphuric Acid.*—*United States.*—The same precisely as that of the Edinburgh College.

Concentrated sulphuric acid is colourless, transparent, inodorous, and of an oily consistence; it is highly acrid and corrosive; its acid reaction is extremely strong, so that a single drop gives to a large quantity of water the power of reddening vegetable blue colour; but when undiluted it has the property of turning vegetable yellow colours brown, as the alkalies do, but the brown colour is removed by water. Its boiling point is about 545°, and it solidifies at 15° below zero.—PHILLIPS.

Sulphuric acid is prepared in this country by subjecting sulphur and nitre together to strong heat along with a current of air, in consequence of which sulphurous and nitrous acid gas are disengaged; these are led into leaden chambers of great size, containing a thin stratum of water at the bottom. After a time the water becomes strongly charged with sulphuric acid, and being then withdrawn, the acid is concentrated by heating it strongly in glass retorts or platinum stills, so as to drive off most of the water. The nitrous acid in the first stage of this process serves a peculiar and essential purpose; it converts the sulphurous into sulphuric, itself becoming hyponitrous acid by deoxidation. The new acids immediately form, with the watery vapour in the chamber, a crystalline compound of water,—hyponitrous and sulphuric acid; this compound falling into the water is at once decomposed, and sulphuric remains, while hyponitrous acid and deutoxide of nitrogen are disengaged, and, at the same time, combine in the air of the chamber with its oxygen, to reproduce nitrous acid; and these chemical changes recur again and again, till the water is sufficiently loaded with sulphuric acid.—CHRISTISON.

Anhydrous sulphuric acid is a white crystalline solid, having very much the appearance of asbestos; exposed to the air it attracts water, and flies off in the form of dense white fumes; it melts at 66° F., and boils at from 104° to 122° F. The specific gravity of the liquid acid at 78° F. is 1.97. It does not redden litmus paper unless moisture be present.—PEREIRA.

The chief impurities in sulphuric acid are sulphate of lead, derived from the action of the acid on the leaden chambers and nitrous acid. The London College limits the proportion of sulphate to 2½ in the 1,000. An excess above this limit shows a very inferior article, and is most correctly ascertained by distilling the acid, and weighing the residuum; the sulphate of lead is always thrown down by dilution with water, and is the cause of the muddiness which then arises. The nitrous acid is also partly separated by the same means, which might, therefore, be employed as a test for its detection. But a much more delicate and very beautiful test of its presence is a solution of protosulphate of iron, of common or green vitriol, which, when poured gently over the impure acid in a tube, immediately acquires a deep red colour at the line of contact from peroxidation of the iron by the nitrous acid, and communicates the same tint to the whole fluid upon agitation. This test, however, is only to be used in the case of an acid represented to be quite pure; because it is so delicate that no commercial acid whatever will resist it altogether. An important adulteration, not uncommon on the continent, but scarcely known in this country till of late, is oxide of arsenic; this substance may be easily detected by diluting the acid, and passing through it a stream of sulphuretted hydrogen, upon which a yellow sulphuret of arsenic is formed. Sulphuric acid is, when concentrated or slightly diluted, a most deadly poison; its antidotes are chalk, whiting, or magnesia suspended in water; in the absence of these, soapsuds, infusion of wood ashes, weak solutions of the alkaline carbonates, white of eggs, gelatine, milk, oil, or, in fact, any mild diluent, should be immediately administered. External parts burnt with oil of vitriol should be washed with a solution of soap or simple water.—PEREIRA.

All substances that combine with, or are acted upon by this acid, are, of course, incompatible with it; such are most of the metals, their oxides, some of the earths, their carbonates, and the alkaline carbonates. The solutions of acetate of lead and of chloride of calcium are decomposed by it; white precipitates of sulphate of lead and sulphate of lime are obtained; its presence is detected by the action of barytic, with the base of which it forms sulphate of barytes, soluble only in concentrated sulphuric acid.—PHILLIPS.

ACIDUM SULPHURICUM AROMATICUM—*Aromatic Sulphuric Acid, Elixir of Vitriol, E.*—Take of commercial sulphuric acid 3 fluid ounces

and a half; rectified spirits of wine one pint and a half; cinnamon, bruised, one ounce and a half; ginger, bruised, one ounce; add the acid gradually to the spirit; let the mixture digest at a very gentle heat for three days in a close vessel; the mixed powders may be then moistened with a little of the acid spirit, and, after twelve hours, they may be exhausted by percolation with the rest of the spirit.—*Edinburgh.*

Acidum Sulphuricum Aromaticum—*Aromatic Sulphuric Acid, D.*—Take of commercial sulphuric acid half a pound; rectified spirits 2 old wine pints; cinnamon, bruised, an ounce and a half; ginger, bruised, an ounce; add the acid gradually to the spirit; let the mixture digest at a very gentle heat for three days in a close vessel; add the powders, digest for six days more, and then strain.—*Dublin.*

Acidum Sulphuricum Aromaticum—*Aromatic Sulphuric Acid, Elixir of Vitriol, U.S.*—Take of sulphuric acid 3 fluid ounces and a half; ginger, bruised, an ounce; cinnamon, bruised, an ounce and a half; alcohol 2 pints; add the acid gradually to the alcohol, and digest in a close glass vessel for three days; then add the ginger and cinnamon and macerate for a week; lastly, filter through paper.—*United States.*

Acide Sulphurique Alcoolisé—*Sweet Spirits of Vitriol, P.*—Take of sulphuric acid of commerce, sp. gr. 1.842 one part, alcohol three parts; add the spirit gradually to the acid, stirring the while to facilitate the mixture; heat is given out, and a precipitation of sulphate of lead takes place.

In mixing alcohol and sulphuric acid, sulphovinic acid is formed, and the product is a mixture of this acid, water, alcohol, and sulphuric acid; after some time it acquires an ethereal odour.—Soubeiran.

Acidum Tannicum—*Tannic Acid, Tannin, U.S.*—Take of galls in powder, sulphuric æther, each a sufficient quantity; put into a glass adapter, loosely closed at its lower end with carded cotton, sufficient powdered galls to fill about one half of it, and press the powder slightly; then fit the adapter accurately to the mouth of a receiving vessel, fill it with the sulphuric æther, and close the upper orifice so as to prevent the escape of the æther by evaporation. The liquid which passes separates into two unequal portions, of which the lower is much smaller in quantity, and much denser than the upper. When the æther ceases to pass, pour fresh portions upon the galls until the lower stratum of liquid in the receiver no longer increases; then separate this from the upper, put it into a capsule, and evaporate with a moderate heat to dryness; lastly, rub what remains into powder: the upper portion of liquid will yield by distillation a quantity of æther, which, when washed with water, may be employed in a subsequent operation. Tannic acid is of a yellowish white colour, of a strongly astringent taste, decomposed and entirely dispersed when thrown on red-hot iron; very soluble in water, and less soluble in alcohol and æther; its solution reddens litmus; produces with solution of gelatin a white flocculent precipitate, with the salts of the sesquioxide of iron a bluish black precipitate, and, with solutions of the vegetable alkalies, white precipitates, very soluble in acetic acid.—*United States.*

Acide Tannique—*Tannic Acid, P.*—The directions are the same as the United States Pharmacopœia.—*Codex.*

Acidum Tartaricum—*Tartaric Acid, L.*—Take of bitartrate of potash 4 pounds (troy), distilled water boiling 2 gallons and a ½, prepared chalk 25 ounces 16 drachms (troy), diluted sulphuric acid 7 pints and 17 fluid ounces, hydrochloric acid 26½ fluid ounces, or as much as may be sufficient. Boil the bitartrate of potash with 2 gallons of the distilled water, and add gradually half of the prepared chalk; afterwards, the effervescence having ceased, add the remainder of the chalk first dissolved in the hydrochloric acid with 4 pints of the distilled water; lastly, set aside that the tartrate of lime may subside; pour off the liquor and wash the tartrate of lime frequently with distilled water, till it is free from taste; then pour on it the diluted sulphuric acid, and boil them for a quarter of an hour; evaporate the strained liquor with a gentle heat that crystals may be formed; dissolve the crystals that they may be pure again, and a third time in water, strain as often, boil down and set it aside.—*London.*

Acidum Tartaricum—*Tartaric Acid, E.*—Take of bitartrate of potash 4 pounds (troy), boiling distilled water 2½ gallons, prepared chalk 25 ounces and 6 drachms troy, diluted sulphuric acid 10 pints and 7 fluid ounces, muriatic acid 26½ fluid ounces, or a sufficiency. The directions are the same as the London College.—*Edinburgh.*

Acidum Tartaricum—*Tartaric Acid, D.*—The only differences in the Dublin process from that of the London are, that it directs the chalk to be added to the bitartrate to saturation, and the muriate of lime to be added to the residual liquid in sufficient quantity, and not till the liquid has been separated by filtration and washing from the tartrate of lime formed in the first stage of the process; and the action of the sulphuric acid to be kept up at a gentle heat for three days, with frequent stirring.—*Dublin.*

Acide Tartrique—*Tartaric Acid, P.*—Take of purified bitartrate of potash 2 pounds, boiling water sufficient quantity to dissolve the salt; when dissolved, throw in by degrees powdered chalk sufficient to neutralise the acid. Set the liquor aside, wash the deposit with water until it is tasteless, dilute it with warm water, and then add 8 ounces of strong sulphuric acid; set aside, pour off the clear liquor and evaporate to one half, then again set aside, decant, evaporate, and set aside to crystallize.—*Jourdan.*

Bitartrate of potash, or cream of tartar, is a well-known acidulous salt deposited from wine; it occurs in the state of small, colourless, hard crystals, which are very sparingly soluble in water; in its original impure state it is called argol, and is of a yellowish or red colour, according to that of the wine which yields it. It contains tartrate of lime, colouring matter, and other impurities, from which it is partly freed by solution in boiling water, and crystallisation as the solution cools.—Phillips.

In order to obtain tartaric acid from tartrate of lime, this compound is decomposed by means of the superior affinity of sulphuric, and a solution of tartaric acid is thus formed, from which the acid is got in crystals by evaporation and cooling.—Christison.

Tartaric acid is sparingly soluble in alcohol, cold water dissolves it freely, and boiling water takes up twice its own weight, the solution is very sour, and causes, with solutions of caustic, lime, baryta, and strontia, white precipitates (earthy tartrates), soluble in excess of acid; sal ammoniac dissolves the precipitate (tartrate of lime) produced by lime water. With acetate of lead the solution also forms a white precipitate (tartrate of lead) soluble in excess of acid. Dropped into a solution of sulphate of lime it furnishes no precipitate. Heated with a solution of chloride of platinum, tartrate of potash occasions a black precipitate (metallic platinum). If excess of acid be added to a concentrated solution of a potash salt, small granular crystals (bitartrate of potash) are deposited. With nitrate of silver tartrate of potash furnishes a white precipitate (tartrate of silver), which, when heated, does not deflagrate, but becomes brown, froths up, evolves white fumes, and leaves pure silver.—Pereira.

The adulteration of the tartaric acid of the shops is lime; it is best detected and its proportion estimated by incineration with the red oxide of mercury, when the lime alone is left behind in the form of carbonate. Good tartaric acid does not leave above a 2,000th part of its weight of carbonate of lime.

Tartaric acid, as already noticed, combines with the alkalies and decomposes their carbonates; its effects are similar upon most earths and oxides and their carbonates, and it is, therefore, incompatible with them.—Phillips.

Æther Sulphuricus—*Sulphuric Æther, L.*—Take of rectified spirit 3 pounds; sulphuric acid 2 pounds; carbonate of potash, previously ignited, an ounce; pour 2 pounds of the spirit into a glass retort, add the acid to it, and mix; afterwards place it on sand, and raise the heat so that the liquid may quickly boil, and the æther pass into a receiving vessel cooled with ice or water; let the liquor distil until some heavier portions begin to pass over; to the liquor which remains in the retort, after the heat has diminished, pour the remainder of the spirit, that æther may distil in like manner; mix the distilled liquors; then pour off the supernatant portion, and add to it the carbonate of potash, shaking them frequently during an hour; lastly, let the æther distil from a glass retort, and be kept in a stoppered vessel.—*London.*

The proper density of this æther is 750, but that of commercial æther varies from 733 to 765.

Æther Sulphuricus—*Sulphuric Æther, E.*—Take of sulphuric acid ten fluid ounces, rectified spirits 50 fluid ounces; pour 12 ounces of the spirit gently over the acid in an open vessel, and then stir them briskly and thoroughly; transfer the mixture immediately into a glass mattras connected with a refrigeratory, and raise the heat quickly to about 280°; as soon as the æthereal fluid begins to pass over, supply fresh spirit through a tube into the mattras in a continuous stream, and in such quantity as to equal the volume of the fluid that distils over—this is best done by connecting one end of the tube with a graduated vessel containing the spirit, passing the other end through a cock fitted into the mattras, and having a stopcock on the tube to regulate the discharge; when the whole spirit has been added, and 42 fluid ounces have distilled over, the process may be stopped; agitate the impure æther with 16 fluid ounces of a saturated solution of muriate of lime, containing also half an ounce of lime recently slaked; when all odour of sulphurous acid has disappeared, pour off the supernatant liquid, and distil it with a gentle heat so long as what passes over has a density not higher than 735; more æther of equal strength may be obtained from the muriate of lime; and from the residuum of each distillation a weaker æther may be obtained in small quantity, which must be rectified by distilling it gently again.—*Edinburgh.*

Density, 735 or under.

Æther Sulphuricus—*Sulphuric Æther, D.*—Take 20 ounces by

measure of sulphuric ethereal liquor, and 2 drachms of dry powder of carbonate of potash; mix and distil, with a gentle heat, 12 ounces by measure from a glass retort into a cold receiver.—*Dublin.*

Density, 765.

ÆTHER SULPHURICUS—*Sulphuric Ether, U.S.*—Take of alcohol 4 pints, sulphuric acid a pint, potassa six drachms, distilled water 3 fluid ounces; to two pints of the alcohol, in an open vessel, add gradually 14 fluid ounces of the acid, stirring them frequently; pour the mixture while still hot into a tubulated glass retort, placed upon a sandbath, and connected by a long adapter, with a receiver kept cold by ice or water; then raise the heat quickly until the liquid begins to boil; when about half a pint of the ethereal liquid shall have passed over, introduce gradually into the retort the remainder of the alcohol, previously mixed with 2 fluid ounces of the acid, taking care that the mixture shall enter in a continuous stream, and in such quantity as shall supply the place, as nearly as possible, of the liquid which distils over. This may be accomplished by connecting a vessel containing the alcoholic liquid with the retort, by means of a tube, provided with a stopcock to regulate the discharge, and passing nearly to the bottom of the retort, through a cock accurately fitted into the tubulure. When all the alcohol has been thus added, continue the distillation until about 3 pints shall have passed over, or until white vapours shall appear in the retort. To the product thus obtained add the potassa previously dissolved in the distilled water, and shake them frequently. At the end of twenty-four hours pour off from the alkaline solution the supernatant ether, introduce it into a retort, and, with a gentle heat, distil until 2 pints shall have passed over, or until the distilled liquor shall have the specific gravity of .750.—*United States.*

ETHÉR SULFURIQUE—*Sulphuric Ether, P.*—Take of alcohol, sp. gr. .860, four parts by weight; sulphuric acid, of sp. gr. 1.847, two parts by weight. To two parts of the alcohol, in an open earthen pan, add gradually the acid, stirring continually. Pour this mixture while hot into a tubulated glass retort, placed upon a sandbath, and connected by a long adapter with a leaden worm and receiver, kept cool by a current of cold water; raise the heat quickly until the liquid begins to boil. Through a cock fitted accurately into the tubulure a glass tube passes, reaching nearly to the bottom of the retort; the upper part of this tube is provided with a stopcock, and bent so as to communicate conveniently, by means of India rubber tubing, with a vessel placed some distance from and above the furnace containing the rest of the spirit. When a volume of liquid has been distilled equal to a fourth part of the alcohol introduced, it is to be replaced by opening the stopcock and allowing a continuous stream of spirit to enter, just so much, as nearly as possible, to supply the place of the liquid which continually distils, with such care that the boiling is not interrupted. When all the alcohol has been thus added, and the distilled product equals three parts of the spirit employed, the distillation may be stopped and the appartus taken to pieces. To every pint of the liquid thus obtained (which is a mixture of ether, alcohol, water, acid, and sweet oil of wine, and requires to be redistilled) add two drachms of caustic potash, and agitate frequently for twenty-four hours; decant the ether from the alkaline solution, and distil from a common retort; from time to time take the gravity of the ether, and put aside that portion which is of greater density than .758, and distil it once more with a very gentle heat.—*Paris Codex.*

Sulphuric ether, when pure, is a colourless, limpid, transparent fluid, of a powerful, penetrating, peculiar odour, to which the name *ethereal odour* is usually given, and of a pungent, warm taste, followed by a sense of coldness It is extremely volatile, and its vapour, when respired mixed with air, produces very exhilarating effects. According to Mitschterlich, its specific gravity, when quite pure, is 0.724 at 55° F. The more recent results point to 0.712 as about the correct number. Ether of higher density than 724 contains either alcohol or water, or both. It boils about the temperature of 96° under atmospheric pressure, and *in vacuo* even at 40° below zero. It freezes at 46°. In evaporating it gives rise to intense cold. It undergoes decomposition when long kept under access to atmospheric air, passing gradually into acetic acid and water. It combines in all proportions with alcohol and rectified spirit. It combines also with water, in the proportion of one to nine. It dissolves volatile and fixed oils, many resins and balsams, tannin, caoutchouc, some vegetable alkaloids, sulphur, and phosphorus.—CHRISTISON.

The ether of commerce is usually contaminated with small quantities of either spirit or water, or both; these augment its sp. gr., but do not much affect its medicinal properties. The London College states that its density should be 0.750; but this is too high. The Edinburgh College fixes it at 0.735, or under. I think 0.740 would be sufficiently low. Ether which contains not alcohol does not coagulate the serum of the blood. Pure ether does not redden litmus, but the ether of the shops usually does so slightly, either from being imperfectly prepared or from being too long kept. Ten fluid ounces of water should not dissolve more than one fluid ounce of ether, and the solution should be quite transparent. It should speedily and totally evaporate in the air. It should not become milky when mixed with water. "When agitated in a minim measure, with half its volume of concentrated solution of muriate of lime, its volume is not lessened."—PEREIRA.

The theory of etherification demonstrates that, when strong sulphuric acid is mixed with alcohol, there is formed, on the one hand, a more aqueous sulphuric acid; and, on the other, sulphovinic acid. When this mixture is made to boil, the sulphuric acid is decomposed, its dyhydrate of carbon combines with the alcohol, and constitutes ether; while the proportion of sulphovinic acid progressively diminishes. Mr. Hennell, of Apothecaries'-hall, first explained these phenomena, and he was confirmed in his views by the interesting researches of Serullas. The acid left in the retort is usually of a black colour, and may be employed to convert into ether half as much alcohol again, an experiment which may be repeated several times in succession.

The most profitable way of manufacturing ether has been pointed out by Boullay. It consists in letting the alcohol drop in a slender stream into the acid, previously heated to the etherifying temperature, 280° F. If the acid in this case were concentrated to 1.846, the reaction would be too violent, and the ether would be transformed into bicarburetted hydrogen (dyhidrate of carbon). It is, therefore, necessary to dilute the acid down to the density of 1.780; but this dilution may be preferably effected with alcohol instead of water, by mixing three parts of the strongest acid with two of alcohol, specific gravity 0.830, and distilling off a portion of the ether thereby generated; after which, the stream of alcohol is to be introduced into the tubulure of the retort through a small glass tube plunged into the mixture, this tube being the prolongation of a metallic syphon, whose shorter leg dips into a bottle filled with the alcohol; the longer leg is furnished with a stopcock, for regulating at pleasure the alcoholic streamlet. The distilled vapours should be transmitted through a worm of pure tin, surrounded by cold water, and the condensed fluid received in a glass bottle. The quantity of alcohol which can be thus converted into ether by a given weight of sulphuric acid has not been hitherto accurately determined, but it is at least double. In operating in this way, neither sulphurous acid nor sweet oil of wine is generated, while the residuary liquid in the retort continues limpid, and of a merely brownish yellow colour. No sulphovinic acid is formed, and, according to the experiments of Geiger, the proportion of ether approaches to what theory shows to be the maximum amount. In fact, 57 parts of alcohol, of 0.83 sp. gr., being equivalent to 46.8 of anhydrous alcohol, yield, according to Geiger, 33½ parts of ether; and, by calculation, they should yield 37¼.—DR. URE.

In large doses ether is poisonous, and the same treatment is to be adopted as recommended in cases of poisoning by alcohol.

SPIRITUS ÆTHERIS SULPHURICI COMPOSITUS—*Compound Spiri; of Sulphuric Ether, L.*—Take of sulphuric ether eight fluid ounces. rectified spirit sixteen fluid ounces; ethereal oil three fluidrachms Mix them together.—*London.*

This preparation is analogous to the *liquor anodynus mineralis* of Hoffmann. By the admixture of spirit with the ether and ethereal oil these are rendered miscible with water, and more convenient for exhibition.—PHILLIPS.

SPIRITUS ÆTHEREUS SULPHURICI—*Spirit of Sulphuric Ether, E.*—Take of sulphuric ether a pint; rectified spirit two pints. Mix them together.—*Edinburgh.*

SPIRITUS ÆTHERIS SULPHURICI COMPOSITUS—*Compound Spirit of Sulphuric Ether (Hoffmann's Anodyne Liquor), U.S.*—Take of sulphuric ether half a pint; alcohol a pint; ethereal oil 3 fluid drachms. Mix them.—*United States.*

This should have the specific gravity of 0.816.

ETHER SULPHURIQUE ALCOOLISÉ *(Liqueur d'Hoffmann)*—*Spirit of Sulphuric Ether, P.*—Take of sulphuric ether and alcohol equal parts by weight. Mix them, and preserve in a closely stoppered bottle.—*Paris Codex.*

EAU ETHERÉE—*Aqueous Solution of Ether, P.*—Take of distilled water 1,000 parts by weight; sulphuric ether 128 parts by weight; agitate them well together continually in a bottle until the water is saturated; set aside for twenty-four hours, and separate by decantation the layer of ether which floats on the top.—*Paris Codex.*

Ether may be readily incorporated with water or any aqueous vehicle by rubbing it with spermaceti, employed in the proportion of gr. ij. for each fluidrachm of the ether.—U. S. DISPENSATORY.

OLEUM ÆTHEREUM—*Ethereal Oil, L.*—Take of rectified spirit 2 pounds; sulphuric acid 4 pounds; solution of potash, distilled water, each a fluid ounce, or as much as may be sufficient; mix the acid cautiously with the spirit; let the liquor distil until a black froth arises; then immediately remove the retort from the fire; separate the lighter supernatant liquor from the heavier one, and expose the former to the air for a day; add to it the solution of potash first mixed with the water, and shake them together; lastly, when sufficiently washed, separate the ethereal oil which subsides.—*London.*

LIQUOR ETHEREUS OLEOSUS—*Oily Ethereal Liquor, D.*—Take what remains in the retort after the distillation of sulphuric ether; distil to one half by a moderate heat.—*Dublin.*

Oleum Æthereum—*Ethereal Oil, U.S.*—Take of alcohol 2 pints, sulphuric acid 3 pints, solution of potassa half a fluid ounce, distilled water a fluid ounce; mix the acid cautiously with the alcohol, allow the mixture to stand twelve hours, then pour it into a large glass retort, to which a receiver kept cool by ice or water is adapted, and distil by means of a sandbath until a black froth rises, when the retort is to be removed immediately from the sandbath; separate the lighter supernatant liquid in the receiver from the heavier, and expose it to the air for a day; then add to it the solution of potassa previously mixed with the distilled water, and shake them together; lastly, separate the ethereal oil as soon as it shall have subsided. The specific gravity of this liquid is 1.096.—*United States.*

The products of the distillation are ether, water, sulphurous acid, and a yellow oily fluid which floats upon the water; the sulphurous acid results from the mutual decomposition of a portion of the sulphuric acid and alcohol, the black froth being charcoal separated from the spirit. The yellow oily fluid on exposure to the air loses, by evaporation, the ether with which it is mixed, and the residue, after the action of the potash to separate the sulphurous acid, is ethereal oil, sometimes called heavy oil of wine to distinguish it from a lighter oil, which it yields by partial decomposition.—Phillips.

Ethereal oil is a yellow fluid of an oily consistence, sp. gr. 1.133; it has a penetrating aromatic odour and pungent taste; it does not affect test paper; it is nearly insoluble in water, but freely soluble in alcohol and sulphuric ether. When evaporated with an alkali, or simply boiled with a little water, it is converted into olefiant gas and sulphovinic acid.—Collier.

Æther Nitrosus—*Hyponitrous Ether—Nitric Ether, D.*—Take of purified nitrate of potash in coarse powder 1½ pounds; sulphuric acid 1 pound; rectified spirit of wine, 19 ounces by measure. Put the nitrate into a tubulated retort placed in a cold water-bath; add gradually and successively the acid and spirit previously mixed and cooled. An ethereal liquor will rise without heat, or on adding tepid water to the bath; brisk ebullition, which soon follows, must be kept down by substituting cold water. The receiver, which should be cooled by water or snow, must have an apparatus for transmitting the elastic vapour, sometimes suddenly disengaged, through a pound of rectified spirit kept cool in a bottle. The ethereal liquor, thus spontaneously distilled, is to be put into a glass phial fitted with a ground glass stopper, and as much subcarbonate of potash, dried and in powder, is to be added as is necessary to neutralize the acid, closing the phial after each addition of the potash, and determining the neutralization by litmus; about a drachm of the salt is generally sufficient for this purpose; and in a short time the nitrous ether will rise to the surface, and is to be separated by means of a funnel. If the ether is required to be very pure, distil it again from a water-bath, at a temperature of 140° to one half. Its specific gravity is to that of distilled water as 900 to 1,000.—*Dublin.*

"The action of nitric acid on alcohol is so violent, that the formation of ether which it affords has always been regarded as a process of great difficulty, to avoid which, many ingenious plans have been suggested. The operation which has been just described is admirably adapted for procuring it with facility and safety. It is surprising, however, with what safety and despatch the process may be conducted by direct action of the strong acid on the spirit, provided certain little precautions be attended to, such as are detailed in the first part of the formula of the Edinburgh College for making spirit of nitrous ether."

Nitrous ether is a very volatile liquid (more so than sulphuric ether), boiling at 70°, and, consequently, producing a greater degree of cold by its evaporation; it is of a pale yellow colour, with an agreeable powerful ethereal odour, and of a sweetish, cooling, somewhat acid taste; when pure its sp. gr. at 59° Fahrenheit is .947, and when highly rectified it is 0.866; it is very inflammable. It is soluble, according to Berzelius, in 48 parts of water, but combines with alcohol in every proportion; the alkalis decompose it, forming alkaline nitrates, acetates, alcohol, and various gases.

Nitrous ether, although introduced into the Dublin Pharmacopœia, has not yet been generally used in practice.

Spiritus Ætheris Nitrici—*Spirit of Nitric Ether, L.*—Take of rectified spirit 3 pounds; nitric acid, sp. gr. 1.500, 4 ounces. Add the acid gradually to the spirit and mix, then let 32 fluid ounces distil.—*London.*

The density should not exceed .834.

Spiritus Ætheris Nitrici—*Hyponitrous Ether, with four volumes of Rectified Spirit—Spirit of Nitric Ether, E.*—Take of rectified spirit 2 pints and 6 fluid ounces; pure nitric acid, sp. gr. 1.500, 7 fluid ounces; put 15 fluid ounces of the spirit, with a little clean sand, into a 2-pint mattras, fitted with a cork, through which are passed a safety tube terminating an inch above the spirit, and another tube leading to a refrigeratory. The safety-tube being filled with pure nitric acid, add through it gradually 3½ fluid ounces of the acid. When the ebullition, which slowly arises, is nearly over, add the rest of the acid gradually, half an ounce at a time, waiting till the ebullition caused by each portion is nearly over before adding more, and cooling the refrigeratory with a stream of water, iced in summer. The ether thus distilled over, being received into a bottle, is to be agitated first with a little milk of lime till it ceases to redden litmus paper, and then with half its volume of a concentrated solution of muriate of lime. The pure hyponitrous ether thus obtained, which should have a density of .899, is then to be mixed with the remainder of the rectified spirit, or exactly four times its volume.—*Edinburgh.*

The density of spirit of nitric ether by this process is 847.

Spiritus Æthereus Nitrosus—*Nitrous Ethereal Spirit, D.*—Add to the residuum of the distillation of nitrous ether the spirit employed in that process for condensing the elastic vapour, and distil with a vapour-bath heat to dryness; mix the distilled liquor with the alkaline liquor remaining after separation of the nitrous ether, and add sufficient dry carbonate of potash to saturate the free acid as indicated by its not reddening litmus paper; lastly, distil with the vapour-bath heat so long as anything passes over.—*Dublin.*

The density of this is .850.

Spiritus Ætheris Nitrici—*Spirit of Nitric Ether—Sweet Spirit of Nitre, U.S.*—Take of nitrate of potash, in coarse powder, 2 pounds, sulphuric acid (of commerce) 1½ pounds, alcohol 9½ pints, diluted alcohol a pint, carbonate of potassa an ounce. Mix the nitrate of potash and the alcohol in a large glass retort, and, having carefully poured in the acid, digest with a gentle heat for two hours; then raise the heat, and distil one gallon. To the distilled liquor add the diluted alcohol and carbonate of potassa, and again distil a gallon.—*United States.*

The density of this should not exceed .834.

Acide Nitrique Alcoolisé—Esprit de Nitre Dulficié—*Sweet Spirit of Nitre, P.*—Take of nitric acid of commerce one part by weight, rectified spirit three parts by weight. Mix them together, and put aside for use.—*Paris Codex.*

Spirit of nitric ether is a mixture of alcohol and hyponitrous ether; when recently prepared it is not acid, but becomes so when kept some time: this change seems to take place most quickly in the strongest qualities. It is exceedingly subject to adulteration, partly from faults in preparing it, and partly from the cupidity of fraudulent dealers. The impurities are nitrous acid, from its being too long kept, and water or alcohol, or both, which are fraudulently added. The first is detected by the spirit effervescing sensibly with carbonate of soda, or bicarbonate of potash. The others are best discovered by agitating the spirit with twice its volume of concentrated solution of muriate of lime, upon which 12 per cent. of ether rises to the surface with the Edinburgh preparation, while that made by the London formula never yields more than four.—Christison.

Ether Acétique—*Acetic Ether, P.*—Take of rectified spirit of wine 100 parts by weight, concentrated acetic acid 67 parts by weight, strong sulphuric acid 21 parts by weight. Put first the alcohol and acetic acid into a glass retort, and then add gradually the sulphuric acid, stirring the while to facilitate the mixture; adapt a receiver, and distil from a sandbath about 133 parts. Agitate with this sufficient carbonate of potash to neutralize the free acetic acid; set aside for some hours, decant the clear liquor, and distil 100 parts.—*Paris Codex.*

"It is a colourless, transparent, very volatile liquid, and has an agreeable odour of acetic acid and ether. It is soluble in seven parts of water, and mixes with alcohol and ether in every proportion. When free from water, it may be kept unchanged in stoppered bottles, but, if it contain water, it rapidly decomposes into acetic acid and alcohol; the alkalis decompose it with great facility. Its sp. gr. is .890 at 60°."

Acetic ether may also be prepared by submitting to distillation a mixture of 16 parts of dry acetate of lead, 4½ parts of alcohol, and 6 parts of strong sulphuric acid; or 10 parts of crystallized acetate of soda, 15 of strong sulphuric acid, and six of alcohol at 80 per cent. The product is rectified with slaked lime and chloride of calcium, to remove acid and water; and a quantity of acetic ether, equal in weight to the alcohol employed, is obtained.—Liebig.

Æther Hydrochloricus—*Hydrochloric Ether.*—Take equal parts of strong alcohol and hydrochloric acid. Put them into a retort with an adapter attached, and dipping into a receiver filled with warm water; from this receiver a tube also proceeds to a condenser surrounded with a freezing mixture. Heat gradually the retort; a mixture of water, hydrochloric acid, alcohol, and ether pass over; the three first remain in the first receiver; when the water in it rises to about 77° F., the hydrochloric ether distils into the condenser.—Soubeiran.

"Hydrochloric ether is a colourless liquid, having a penetrating odour, and a taste somewhat sweetish. Its specific gravity is 0.874 at 40° F. It boils at 51° F., and dissolves in about 24 parts of water."

Neither of the colleges give directions for the preparation of this ether, but, as it is becoming very much used, some account of it is very necessary.

Alkalis and Alkaloids.

Aconitina — *Aconitina, L.* — Take of the root of aconite, (monkshood), dried and bruised, 2 pounds, rectified spirit 3 gallons,

diluted sulphuric acid, solution of ammonia, and purified animal charcoal, each as much as may be sufficient; boil the aconite root with a gallon of the spirit for an hour in a retort to which a receiver is adapted. Pour off the liquor, and again boil the residue with another gallon of the spirit, and with the spirit recently distilled, and pour off the liquor also. Let the same be done a third time. Then press the aconite, and, all the liquors being mixed and strained, let the spirit distil; evaporate what remains to the proper consistence of an extract. Dissolve this in water and strain. Evaporate the liquor with a gentle heat, that it may thicken like a syrup. To this add of dilute sulphuric acid, mixed with distilled water, as much as may be sufficient to dissolve the aconitina. Then pour in solution of ammonia, and dissolve the aconitina, precipitated, in dilute sulphuric acid and water, mixed as before. Afterwards mix in the animal charcoal, frequently shaking them during a quarter of an hour. Lastly, strain, and solution of ammonia being again poured in, that the aconite may be precipitated, wash and dry it.—*London.*

Aconitina is one of a numerous class of bodies called vegetable alkalis, or alkaloids; it exists in the aconite in combination with a vegetable acid, to which the name of aconitic acid has lately been given; the vegetable salt or aconitate of aconitina is dissolved by the spirit in which the root containing it is boiled.—PHILLIPS.

"Aconitina is in the form of a white semicrystalline powder, without odour, of a bitter taste, with little or no acridity. It is very soluble in ether, less so in alcohol, and it takes 150 parts of cold and 50 of boiling water to dissolve. As usually met with, it is of a greyish-yellow colour, in which state it is very impure: it should be totally consumed in the fire, no salt of lime remaining. This alkali, when perfectly pure, is in the highest degree poisonous; the fiftieth part of a grain has endangered the life of an individual."

In cases of poisoning with aconitina, emetics should be immediately administered, and the most active stimulants, both external and internal, should be employed. No antidote has as yet been discovered for it.—NELIGAN.

LIQUOR AMMONIÆ—*Solution of Ammonia, L.*—Take of hydrochlorate of ammonia 10 ounces, lime 8 ounces, water 2 pints. Put the lime slaked with the water into the retort, then add the hydrochlorate of ammonia broken into small pieces, and the rest of the water. Let 15 fluid ounces of solution of ammonia distil.—*London.*

The density of this is .960.

AQUA AMMONIÆ—*Water of Ammonia, E.*—Take of muriate of ammonia 1 pound, lime newly burnt 1½ pounds, distilled water 1 pound, common water 9 ounces.—*Edinburgh.*

The density of this is .960. For process, see Aquæ Ammonia Fortior.

AMMONIÆ CAUSTICÆ AQUA—*Water of Ammonia, D.*—Take of muriate of ammonia in powder 3 parts, lime newly burnt 2 parts, water 10 parts; pour one part of the water, made hot, upon the lime placed in an earthen vessel, and cover it up; dissolve the salt in the rest of the water, also heated. After the saline portion is cold, add it to the lime now in powder, cooled and placed in a retort; distil five parts, with a medium heat, into a receiver kept cool.—*Dublin.*

The density of this solution is .950.

LIQUOR AMMONIÆ—*Solution of Ammonia, U.S.*—Take of muriate of ammonia, in fine powder, lime, each, a pound; distilled water a pint; common water nine fluid ounces. Break the lime in pieces, and pour the water upon it in an earthen or iron vessel, then cover the vessel, and set it aside till the lime falls into powder and becomes cold. Mix this thoroughly with the muriate of ammonia in a mortar, and immediately introduce the mixture into a glass retort. Place the retort upon a sandbath, and adapt to it a receiver, previously connected by means of a glass tube, with a quart bottle containing the distilled water. Then apply heat, to be gradually increased till the bottom of the iron vessel containing the sand becomes red hot, and continue the process so long as ammonia comes over. Remove the liquor contained in the quart bottle, and for every liquid ounce of it add three and a half fluidrachms of distilled water, or as much as may be necessary to raise its specific gravity to .960. Keep the solution in small bottles well stopped. One hundred grains of this will saturate thirty grains of officinal sulphuric acid.—*United States.*

AMMONIAQUE LIQUIDE—*Solution of Ammonia, P.*—Take of hydrochlorate of ammonia in powder, slaked lime, each two parts. Mix them quickly and carefully, and introduce them immediately into a retort, with an adapter and receiver strongly luted on, the receiver communicating with a series of Woulf's bottles; the first containing no more than enough water to allow of the bottom of the tube, from which the ammoniacal gas escapes, to dip beneath it; each of the other two to hold one and a half part of water, and each of the communicating tubes to dip into the water and reach nearly to the bottom. Heat the retort at first very gently, and gradually raise the heat until no more gas is disengaged. In the first bottle the water has merely washed the ammonia, and you have a very strong but impure solution; in the second there is a quantity of pure liquor of ammonia, about the density of .912, which must be kept in well-stopped bottles; and in the third bottle there is a very weak solution which can be used in the next operation. The residue in the retort is a mixture of chloride and oxide of calcium. During the condensation of the ammoniacal gas by the water much heat is given out, and it is, therefore, necessary to keep the bottles cool by ice or freezing mixtures. The bottles themselves, on account of the increase in the quantity as it distils, must be capable of holding twice as much as originally was put in them.—*Paris Codex.*

AQUA AMMONIÆ FORTIOR—*Stronger Solution of Ammonia, E.*—Take of sal ammoniac, 13 ounces; quick lime, 13 ounces; water, 7½ fluid ounces; distilled water, 12 fluid ounces. Slake the lime with the water; cover it up till it cools; triturate it quickly with the sal ammoniac previously in fine powder; and put the mixture into a glass retort, to which is fitted a receiver with a safety-tube. Connect with the receiver a bottle also provided with a safety-tube, and containing four fluid ounces of the distilled water, but capable of holding twice as much. Connect this bottle with another loosely corked, and containing the remaining eight ounces of distilled water. The communicating tubes must descend to the bottom of the bottles at the farther end from the retort, and the bottles and receiver must be kept cool by snow, ice, or a running stream of very cold water. Apply to the retort a gradually increasing heat till gas ceases to be evolved; remove the retort cork up the aperture in the receiver, where it was connected with the retort, and apply to the receiver a gentle and gradually increasing heat, to drive over as much of the gas in the fluid contained in it, but as little of the water as possible. Should the liquid in the last bottle not have a density of .960, reduce it with some of the strong ammonia in the first bottle, or raise it with distilled water so as to form aqua ammoniæ of the prescribed density.—*Edinburgh.*

The density of this strong solution of ammonia is .880. One fluid ounce with two fluid ounces and a half of water make the weaker aqua ammoniæ.

In making water of ammonia on the great scale, a cast-iron still should be preferred, and equal weight of sal ammoniac and quick lime should be brought to the consistence of a pap, with water, before the heat is applied. Water is capable of condensing easily about one third of its weight of ammoniacal gas, or 460 times its bulk.—Dr. URE.

Solution of ammonia entirely evaporates by heat in evanescent alkaline vapours, as shown by turmeric. It gives no precipitate with lime water if carbonic acid is absent; dilute nitric acid occasions no effervescence if carbonate of ammonia is not present; and if neither sesquicarbonate of ammonia nor nitrate of silver give any precipitate when it has been saturated with nitric acid, it proves that no earthy matter, hydrochloric acid, nor any chloride is present.—PHILLIPS.

Solution of ammonia is a transparent colourless fluid, of an acrid alkaline taste, and overpowering pungent ammoniacal odour. When exposed to the air it very quickly parts with ammonia, and also absorbs carbonic acid; so it must be kept in well-closed bottles. It unites with oils to form soaps or liniments, of which one made with olive oil is the officinal "Linimentum ammoniæ." It decomposes most earthy and metallic salts, throwing down their oxides; but frequently a portion of ammonia combines with the precipitated oxide; and sometimes an excess of the ammonia redissolves it, and produces a double salt. It may easily be known from all other liquids by its odour, and by not effervescing with dilute acids.—CHRISTISON.

The residuum left in the retort after distillation is chloride of calcium, and affords by precipitation with carbonate of soda the Creta precip. of the shops.

AMMONIÆ SESQUICARBONAS—*Sesquicarbonate of Ammonia, L.*—Take of hydrochlorate of ammonia a pound; chalk, a pound and a half; rub them separately to powder; then mix, and with heat, gradually increased, sublime.—*London.*

SUBCARBONAS AMMONIÆ—*Subcarbonate of Ammonia, E.*—Take of muriate of ammonia 1 part; softer carbonate of lime, dried, 2 parts; separately pulverize and mix them, and sublime from a retort into a receiver kept cool.—*Edinburgh.*

AMMONIÆ CARBONAS—*Carbonate of Ammonia, D.*—Take of muriate of ammonia reduced to powder, and well dried, carbonate of soda, dried, each 1 part; mix; then put them into an earthen retort, and sublime the carbonate of ammonia with a heat gradually increased into a receiver kept cold.—*Dublin.*

AMMONIÆ CARBONAS—*Carbonate of Ammonia, U.S.*—Take of muriate of ammonia 1 pound; chalk, dried, 1½ pounds; pulverize them separately; then mix them thoroughly, and sublime with a gradually increasing heat.—*United States.*

CARBONATE D'AMMONIAQUE—*Carbonate of Ammonia, P.*—Take of hydrochlorate of ammonia and chalk each 1 part; mix intimately these two substances, previously reduced to powder and well dried. Introduce the mixture into an earthen retort, luted with clay to an

earthen or leaden receiver, having a small aperture at the top, and wholly immersed in water. Heat the retort, gradually increasing, and when white vapours appear through the opening in the receiver, cork it up tightly; keep cool by a stream of water, and regulate the heat of the furnace according to the emission of the vapour; continue until the steam, instead of being white and opaque as at first, escapes transparent; stop the fire by closing all draught, and, when the apparatus has cooled, take it to pieces; drain the receiver, which still contains a little liquid; then sublime a second and a third charge into the same receiver, or until the carbonate of ammonia is of sufficient thickness, when it is to be at once broken into smaller pieces and corked up tightly in jars. In the lower part of the receiver there is always a small quantity, less compact, more damp, and unfit to keep, which is to be put aside for preparing the liquor ammoniæ acetatis.—*Paris Codex.*

"The carbonate of ammonia used in medicine is generally obtained through the mutual decomposition of sal ammoniac and carbonate of lime, aided by heat. The Dublin College has substituted the carbonate of soda for the carbonate of lime, but without any advantage; and some manufacturers use, instead of sal ammoniac, the crude sulphate of ammonia, which is a less pure product, with an abominable smell.

"The sesquicarbonate of ammonia is usually met with in translucent fibrous masses, of a powerful ammoniacal odour, and a strong ammoniacal and alkaline taste. Under exposure to the air it is rendered quite devoid of smell, and gradually falls to powder. It is soluble, according to Berzelius, in two parts of temperate, and in less than one part of tepid, water; but in boiling water it is decomposed, and ammonia escapes. According to the new doctrine as to the constitution of ammoniacal salts, it consists of two equivalents of oxide of ammonium and three of acid."

Sesquicarbonate of ammonia is decomposed by acids, by potash and soda, and their carbonates; by lime, limewater, magnesia, solution of chloride of calcium, alum, acidulous salts, as bitartrate and bisulphate of potash, and solutions of iron, except the potassio-tartrate; bichloride of mercury, the acetate and diacetate of lead, sulphate of iron and of zinc, are also incompatible with this salt. With sulphate of magnesia it forms no precipitate.—Phillips.

Ammoniæ Bicarbonas—*Bicarbonate of Ammonia, D.*—Transmit to saturation through the aqua carbonatis ammoniæ a stream of carbonic acid gas, evolved from the solution of marble in diluted muriatic acid; let it rest to crystallize; dry the crystals without heat, and keep them in close vessels.—*Dublin.*

"This salt, which is admitted by the Dublin College alone, seems an unnecessary addition to the Pharmacopœia. Its formation, according to the college process, is favoured by pressure. It is permanent in the air, free of ammoniacal odour, and of a slight saline taste, not ammoniacal. It is soluble in eight parts of temperate water (60°); boiling water decomposes it, driving off part of its carbonic gas and ammonia. The solution in cold water is faintly alkaline, and, like the sesquicarbonate of ammonia, it does not precipitate magnesia from its solutions."

Liquor Ammoniæ Sesquicarbonatis—*Solution of Sesquicarbonate of Ammonia, L.*—Take of sesquicarbonate of ammonia 4 ounces, distilled water a pint. Dissolve the sesquicarbonate of ammonia in the water, and strain.—*London.*

Aqua Ammonia Carbonatis—*Solution of Carbonate of Ammonia, E.*—Dissolve 4 ounces of carbonate of ammonia in a pint of distilled water, and strain.—*Edinburgh.*

Aqua Ammoniæ Carbonatis—*Solution of Carbonate of Ammonia.*—Dissolve 4 ounces of carbonate of ammonia in 15 times its weight of distilled water, and strain.—*Dublin.*

The density of this solution is 1090.

Liquor Ammoniæ Acetatis—*Solution of Acetate of Ammonia, L.*—Take of sesquicarbonate of ammonia 4 ounces and a half, or as much as may be sufficient; distilled vinegar (specific gravity 1006) 4 pints; add the sesquicarbonate of ammonia to the vinegar to saturation.—*London.*

Aqua Ammoniæ Acetatis—*Diluted Aqueous Solution of Acetate of Ammonia, E.*—Take of distilled vinegar (from French vinegar in preference), 24 fluid ounces; carbonate of ammonia 1 ounce; mix them, and dissolve the salt; if the solution has any bitterness, add by degrees a little distilled vinegar till that taste be removed. The density of the distilled vinegar should be 1005, and that of the aqua ammoniæ acetat. 1011.—*Edinburgh.*

Aqua Ammoniæ Acetatis—*Water of Acetate of Ammonia, D.*—Stir carbonate of ammonia with about 30 parts of distilled vinegar, added gradually to saturation, as ascertained by litmus.—*Dublin.*

The density of this solution is 1011.

Liquor Ammonia Acetatis—*Solution of Acetate of Ammonia—Spirits of Mindererus, U.S.*—Take of diluted acetic acid two pints; carbonate of ammonia, in powder, a sufficient quantity; add the carbonate of ammonia gradually to the acid until it is saturated.—*United States.*

Acétate d'Ammoniaque Liquide—Esprit de Mindererus—*Solution of Acetate of Ammonia, P.*—Take of acetic acid of specific gravity 1022 one part; carbonate of ammonia a sufficiency; gently heat the acetic acid, and throw in small portions of carbonate of ammonia till there is a slight excess; filter and keep in a well-stopped bottle. 1,000 parts of acetic acid, sp. gr. 1022, require between 60 and 70 parts of carbonate of ammonia to saturate them. The density of the solution is 1036.—*Paris Codex.*

The acetate of ammonia being an exceedingly deliquescent salt, the colleges direct that it shall be prepared and kept for use in a state of solution; by careful evaporation, however, crystals of the salt may be obtained. It should always be made with distilled vinegar, and not, as many druggists are in the practice of doing, with pyroligneous acid sufficiently reduced; for, when made in the latter way, its taste is more disagreeable, and it is more apt to spoil. Care should also be taken that the distilled vinegar is of the correct standard strength.—Christison.

The solution of acetate of ammonia, when pure, is colourless. It should be repeatedly examined during preparation as to its state of saturation before the whole of the ammoniacal salt is added, to ascertain that the quantity is not too large, and afterwards to prove that it is sufficient. It is better that the acid rather than the alkaline salt should appear to be in excess. This solution seldom, if ever, contains any impurities; it is not coloured by the addition of hydrosulphuric acid, nor is anything precipitated by nitrate of silver or chloride of barium. It should be entirely dissipated by heat.—Phillips.

It is incompatible with acids, potash, soda, and their carbonates, lime water, nitrate of silver, and acetate of lead.

This solution is generally supplied to the profession in a concentrated form, and termed the "liq. ammon. acet. conc.," one part mixed with seven of water forming the officinal "liq.," and is prepared with strong acetic acid. It forms a very good commercial article, and has the advantage of keeping for a length of time unaltered. The acetic acid should be very pure.—Ed.

Ammoniæ Hydrosulphuretum—*Hydrosulphuret of Ammonia D.*—Take of sulphuret of iron, in coarse powder, 5 parts; sulphuric acid, 7 parts; water, 30 parts; water of caustic ammonia, 4 parts. Put the sulphuret into a retort, and gradually pour over it the acid, diluted with water; and in a proper apparatus transmit the gas evolved from it through water of ammonia. Towards the conclusion of the operation apply a moderate heat to the mattras.—*Dublin.*

Hydrosulphuret of ammonia is of a green colour, has a very fœtid odour, and an acrid, disagreeable taste. It is decomposed by the acids, evolving sulphuretted hydrogen. Exposed to the air, it deposits sulphur, owing to the escape of some of the ammonia.

Iod-Hydrate d'Ammoniaque—Hydriodate d'Ammoniaque—*Hydriodate of Ammonia, P.*—Take of iodine, 100 parts; iron filings, 30 parts; distilled water, 500 parts; carbonate of ammonia a sufficiency. Proceed in the same way as in the preparation of hydriodate of potash, substituting ammonia for potash; and when a white salt is desired be careful to preserve a slight excess of ammonia in the solution during evaporation. Hydriodate of ammonia is white; it crystallizes in cubes, it is very soluble in water, and quickly becomes coloured by exposure to the air.—*Paris Codex.*

Morphia—*Morphia, L.*—Take of hydrochlorate of morphia an ounce, solution of ammonia five fluidrachms, distilled water a pint; add the hydrochlorate of morphia, first dissolved in the pint of water, to the solution of ammonia, with an ounce of water, shaking them together. What is precipitated wash with distilled water, and dry it with a gentle heat.—*London.*

Morphia—*Morphia, U.S.*—Take of opium, sliced, a pound; distilled water, alcohol, each, a sufficient quantity; solution of ammonia six fluid ounces. Macerate the opium with four pints of distilled water for twenty-four hours, and, having worked it with the hands, digest for twenty-four hours and strain. In like manner macerate the residue twice successively with distilled water, and strain. Mix the infusions, evaporate to six pints, and filter. Then add first five pints of the alcohol, and afterwards three fluid ounces of the solution of ammonia, previously mixed with half a pint of alcohol. After twenty-four hours pour in the remainder of the solution of ammonia, mixed as before, with half a pint of alcohol, and set the liquor aside for twenty-four hours, that crystals may form. To purify these, boil them with two pints of alcohol till they are dissolved, filter the solution while hot through animal charcoal, and set it aside to crystallize.—*United States.*

Morphine—*Morphia, P.*—Take of opium, 100 parts; solution of ammonia, a sufficiency. Dissolve out all the soluble parts of the opium with cold water; this may be accomplished by four separate digestions of several hours each, using ten parts of water to one of opium, and at various times kneading the opium in the hands. Filter the liquors and evaporate to one quarter of their volume. Add enough solution of ammonia to render the solution sensibly alkaline. Boil for

several minutes, always maintaining a slight excess of ammonia; as the solution cools morphia is precipitated of a dark colour, and in granular crystals; reduce this to powder, and macerate for twelve hours in proof spirit, at a temperature of 150° F.; decant the alcoholic liquor, and dissolve the already partly discoloured morphia in boiling alcohol, of specific gravity decimal .865. Mix with the solution a little prepared animal charcoal, and filter; the morphia crystallizes in colourless needle-shaped crystals as the solution cools. In this state the morphia retains a certain quantity of narcotine, to deprive it of which it must be boiled with sulphuric ether in a retort with a long neck and refrigeratory.—*Paris Codex.*

Morphia may be obtained from opium indirectly, as the London College has directed, by first preparing the muriate of morphia, and then decomposing that salt by one of the ordinary alkalis, or it may be prepared directly from the drug itself by a variety of processes. The essential step in every process is decomposition of the salt of morphia in opium, by the superior affinities of an inorganic alkali or alkaline earth for its acid. The method first employed, and still often resorted to, is that proposed by Robiquet, directed to be employed by the Paris Codex. A more recent method, suggested by Merk, which is said to be more productive, and which possesses the advantage of saving spirit as well as frequent crystallizations, consists in decomposing a very concentrated infusion with a large excess of carbonate of soda unaided by heat, and purifying the precipitated morphia by repeated crystallization from alcohol and the action of animal charcoal. A third recent process, that of Mohr, has the advantage of not requiring spirit at all. It consists in pouring a boiling hot infusion of opium into an excess of boiling hot milk of lime in the proportion of four parts of lime to every sixteen of opium originally used, continuing the ebullition for a few minutes, filtering and concentrating the fluid, and then boiling it with one part of muriate of ammonia till ammonia ceases to be disengaged. Morphia is thus easily obtained in a state of moderate purity; and, according to Mohr, it may be purified completely without either spirit or animal charcoal, by forming it into a salt with muriatic acid, and treating this salt in the same way as the opium. The material actions in this ingenious process are, that the excess of lime, while it redissolves the morphia, which in less proportion it would precipitate, does not redissolve narcotin or colouring resinoid matter; and that the muriate of ammonia, decomposed by the excess of lime in the filtered liquid, forms muriate of lime, and thus removes the cause of the morphia being kept in solution. After trying both, they have appeared to me inferior in both respects, but especially in facility to the method generally pursued in this country since the investigations of Dr. William Gregory, and now substantially adopted by the London College; the details of which, with its peculiar advantages, will be found under the head of *Morphiæ Hydrochloras*. According to another method still more lately recommended by Merk, opium is boiled with sixteen times its weight of proof spirit, and the residuum boiled again with half that quantity. The filtered liquors, being next treated with half a part of carbonate of soda, are evaporated to dryness, and the residuum is washed with cold water, then soaked with two parts of rectified spirit (dens. 850), and washed on a filter with a little more spirit. The powder left is now dried and dissolved in one part of distilled vinegar, diluted with its own volume of water; and, after filtration, the matter not acted on is treated with half the previous proportion of acid. The liquors thus obtained are united and decomposed with ammonia and brisk agitation. This method is said to yield from twelve to sixteen per cent. of pure morphia.—Christison.

Morphia is in colourless crystals, which are inflammable, and wholly dissipated by a red heat. According to Berzelius, it is insoluble in cold water, and boiling water dissolves rather more than $\frac{1}{100}$ of its weight; the solution on cooling yields crystals; the hot solution turns turmeric paper brown. It is soluble in forty parts of cold *anhydrous* alcohol, and thirty parts when boiling; in ether it is nearly insoluble; it is dissolved by the volatile and fixed oils; it is very soluble in caustic, potash, ammonia, or lime water; it dissolves readily in diluted acids, neutralizes them, and forms salts, which are for the most part soluble, permanent, and crystallizable.

The best test for morphia is the property which it has of striking a purplish blue with the solution of sesquichloride of iron; the *blue* tint predominates when the morphia is purest. Nitric acid reddens morphia or its salts (the chlorate excepted), and forms with them an orange-red solution, which is much darkened by excess of ammonia, and which becomes yellow after a little time.

Morphia is adulterated principally with narcotina and colouring matter. Narcotina is best detected by solution of potash, which, while it readily dissolves morphia, leaves the narcotina untouched, which, when pure, is distinguished from morphia by its not turning blue on the addition of sesquichloride of iron.

Morphiæ Acetas—*Acetate of Morphia, L.*—Take of morphia 6 drachms; acetic acid 3 fluid drachms; distilled water 4 fluid ounces. Mix the acid with the water, and pour them upon the morphia to saturation. Let the liquor evaporate with a gentle heat, that crystals may be formed.—*London.*

Morphiæ Acetas—*Acetate of Morphia, E.*—Take of muriate of morphia any convenient quantity. Dissolve it in 14 times its weight of warm water, and, when the solution is cool, add aqua ammoniæ gradually, and with constant agitation, until there is a permanent but faint odour of ammonia in the fluid. Collect the precipitate on a calico filter, wash it moderately with cold water, and dissolve it by means of a slight excess of pyroligneous acid in 12 parts of warm water for every part of muriate of morphia that was used. Concentrate the solution over the vapour-bath and set it aside to crystallize. Drain and squeeze the crystals, and dry them with a gentle heat. More acetate of morphia may be obtained on concentrating the mother liquor.—*Edinburgh.*

Morphiæ Acetas—*Acetate of Morphia, U.S.*—Take of morphia, in powder, freed from narcotina by boiling with sulphuric ether, an ounce; distilled water half a pint; acetic acid a sufficient quantity. Mix the morphia with the water; then carefully drop in the acid, continually stirring, until the morphia is saturated and dissolved. Evaporate the solution, by means of a water-bath, to the consistence of syrup. Lastly, dry the acetate with a gentle heat, and rub it into powder.—*United States.*

Acétate de Morphine—*Acetate of Morphia, P.*—Take of morphia 100 parts; acetic acid sufficient quantity. Powder the morphia; dilute with a small quantity of warm water, and pour in as much acetic acid as will dissolve it; evaporate almost to dryness, dry the residue with a gentle heat, and powder in a warm glass mortar; preserve the powder in a well-stopped bottle.—*Paris Codex.*

Acetate of morphia, as usually met with, is a greyish-white powder, sometimes obscurely crystalline; when pure, however, and free from narcotina, it is snow white, and in distinct crystals, and should be entirely soluble in a weak solution of caustic potash; it is also soluble in water. The following test of the Edinburgh Pharmacopœia guards against the adulteration with any other white powder, as it indicates the exact quantity of morphia which ought to be present:—100 measures of a solution of 10 grains in half a fluid ounce of water and 5 minims of acetic acid, heated near to 212°, and decomposed by a faint excess of ammonia, yield by agitation a precipitate which in twenty-four hours occupies 15.5 measures of the liquid.

No process is yet known for obtaining acetate of morphia from opium directly like the muriate. The easiest and most economical way of obtaining morphia will, therefore, constitute the basis of the best process for preparing its acetate. The method of the London and Edinburgh Pharmacopœias, skilfully applied, is the process followed by the manufacturers. Merk states that pure white crystals, entirely soluble in water, may be obtained by diffusing pure and finely-powdered morphia in distilled water, adding acetic acid very gradually, with constant stirring, till the powder is dissolved, and evaporating the solution quickly, at a temperature not exceeding 112° F, by means of a current of air (this is similar to the Paris formula).—Christison.

It is incompatible with the stronger acids, the alkalis and alkaline earths, and most earthy and metallic salts.

Morphiæ Hydrochloras—*Hydrochlorate of Morphia, L.*—Take opium, sliced, a pound, crystals of chloride of lead 2 ounces, or as much as may be sufficient, purified animal charcoal 3½ ounces, hydrochloric acid, distilled water, solution of ammonia, each as much as may be sufficient. Macerate the opium in 4 pints of distilled water for thirty hours, and bruise it; afterwards, being digested for twenty-four hours more, press it. Evaporate the mixed liquors with a heat of 140° to the consistence of a syrup. Then add 3 pints of distilled water, and, when all the dregs have subsided, pour off the supernatant liquor. Gradually add to this 2 ounces of chloride of lead, or as much as may be sufficient, first dissolved in 4 pints of boiling distilled water, till nothing more is precipitated. Pour off the liquor, and wash what remains frequently with distilled water. Next evaporate the liquors mixed together, with a gentle heat, as before, that crystals may be formed. Press them in a cloth, then dissolve them in a pint of distilled water, and digest with an ounce and a half of animal charcoal, in a heat of 120°, and strain. Lastly, the charcoal being washed, evaporate the liquors cautiously, that pure crystals may be produced. To the liquor poured off from the crystals first separated, a pint of water being added to it previously, gradually pour in, frequently shaking it, as much solution of ammonia as may be sufficient to precipitate all the morphia. To this, washed with distilled water, add hydrochloric acid, that it may be saturated: afterwards digest it with 2 ounces of animal charcoal, and strain. Finally, the charcoal being thoroughly washed, evaporate the liquors cautiously, that pure crystals may be produced.—*London.*

Morphiæ Murias—*Muriate of Morphia, E.*—Take of opium 20 ounces, water 8 pints, muriate of lime one ounce or a slight excess. Macerate the opium in fragments for twenty-four hours in 2 pints of the water, and separate the infusion, squeezing well the residue. Repeat the maceration successively with 2 pints more of the water till the whole is made use of. Concentrate the whole infusions over the vapour-bath to one pint, and add the muriate of lime dissolved in 4 fluid ounces of water. Set the whole aside to settle; pour off the liquid; wash the sediment with a little water, adding the washings to the liquid. Eva-

porate the liquid sufficiently in the vapour-bath for it to solidify on cooling. Subject the cooled mass to very strong pressure in a cloth; redissolve the cake in a sufficiency of warm distilled water; add a little fine powder of white marble, and filter; acidulate the filtered fluid with a very little muriatic acid; and concentrate a second time in the vapour-bath for crystallization. Subject the crystals again to very strong pressure in a cloth. Repeat the process of solution, clarification by marble and muriatic acid, concentration, and crystallization, until a snow-white mass be obtained. On the small scale trouble and loss are saved by decolourizing the solution of muriate of morphia by means of a little purified animal charcoal after two crystallizations. But on the large scale it is better to purify the salt by repeated crystallizations alone, and to treat all the expressed fluids, except the first, in the same way with the original solution of impure muriate of morphia. An additional quantity of salt may often be got from the first dark and resinous fluid obtained by expression, on merely allowing it to remain at rest for a few months, when a little muriate of morphia may be deposited in an impure condition. The opium which yields the largest quantity of precipitate by carbonate of soda, according to the formula for testing opium ("a solution from 100 grains of fine opium macerated twenty-four hours in 2 fluid ounces of water, filtered, and strongly squeezed in a cloth, if treated with a cold solution of half an ounce of carbonate of soda in two waters, yields a precipitate which weighs, when dry, at least 10 grains, and dissolves entirely in solution of oxalic acid"), yields muriate of morphia not only in greatest proportion, but likewise with the fewest crystallizations.—*Edinburgh.*

Chlorhydrate de Morphine—Muriate de Morphine—*Hydrochlorate of Morphia, P.*—This is prepared the same way as the sulphate, substituting hydrochloric for sulphuric acid. See *Sulfate de Morphine.—Paris Codex.*

Morphiæ Murias—*Muriate of Morphia, U.S.*—Take of morphia, in powder, an ounce; distilled water half a pint; muriatic acid a sufficient quantity; mix the morphia with the water; then carefully drop in the acid, constantly stirring, till the morphia is saturated and dissolved. Evaporate the solution by means of a water-bath, so that it may crystallize upon cooling. Dry the crystals upon bibulous paper.—*United States.*

In the processes of the London and Edinburgh Pharmacopœias, the meconate of morphia contained in the opium is decomposed by the chloride of lead and muriate of lime; at the same time a portion of the water is also decomposed, in order to furnish hydrogen to the chlorine to change it into hydrochloric acid, and oxygen to the lead to form it into a protoxide; the former unites with the morphia to form the hydrochlorate of morphia; and the latter with the freed meconic acid to form a meconate of oxide of lead, which, being insoluble, is precipitated. The intention of the precipitation with ammonia, and the subsequent addition of the diluted hydrochloric acid, is to get the whole of the morphia; that of the addition of the animal charcoal is to decolourize the salt.

The process which I have proposed is, in my opinion, much simpler, and capable of obtaining a larger quantity of the hydrochlorate from a given quantity of opium. It consists in rubbing the opium, in a hard, dry state, into a powder with clean sand, putting the whole into a percolator, with a piece of clean rag tied over the lower opening, and passing cold water through until it acquires no taste. This solution is to be evaporated to the consistence of syrup, and then thrown into four times the quantity of distilled water, and the fœces allowed to subside. The fluid is to be decanted, and the residue well washed with distilled water. To the separated fluids a saturated solution of chloride of barium is next to be added, until no more precipitate is thrown down; and the insoluble meconate of baryta, thus formed, is to be separated by the filter and well washed upon it. The fluid is now to be evaporated by a gentle heat to form crystals, which are to be pressed, redissolved in water, and digested with pure animal charcoal at a temperature of 120°, and strained. The strained fluid and the washings of the charcoal are to be submitted to cautious evaporation, to form crystals. The residual fluid, which is viscid, from the pressure of the first crystals, being evaporated nearly to dryness, is to be largely diluted and treated as before, to obtain any hydrochlorate of morphia which it may hold in solution.—A. T. Thompson.

"Hydrochlorate of morphia, more commonly called muriate of morphia, is generally met with in the form of a fine, soft, snow-white powder, but it may be readily obtained in feathery acicular crystals. It is without odour, but has an intensely bitter taste, different from that of opium, and peculiar to the morphia salts generally. It is soluble in sixteen to twenty times its weight of cold, and entirely soluble in less than its weight, of boiling water; so that a concentrated boiling solution forms almost a firm crystalline cake on cooling. It is also soluble in rectified spirit."

"The only impurities met with in the muriate of morphia of commerce are colouring matter and moisture—both of them owing to insufficient care in drying and purifying. The tests of the Edinburgh Pharmacopœia guard against these contaminations as well as the adulteration with any similar white powder." "Loss of weight at 212° not above 13 per cent. One hundred measures of a solution of ten grains in half a fluid ounce of water, heated near to 212°, and decomposed by agitation with a faint excess of ammonia, yield a precipitate which, in twenty-four hours, occupies 12.5 measures of the liquid."

It is incompatible with alkalis and alkaline earths, and most earthy and metallic salts.

Sulfate de Morphine—*Sulphate of Morphia, P.*—Take of pure morphia 100 parts, sulphuric acid a sufficiency; reduce the morphia to powder, and dilute with a little water; then pour enough sulphuric acid, previously diluted with 3 or 4 parts of water, as just to dissolve the morphia. Evaporate the solution with a gentle heat to the consistence of a thin syrup, and put by in a cool place for twenty-four hours, that crystals may be formed. Dry between bibulous paper at a heat of from 70° to 80° F.—*Paris Codex.*

Morphiæ Sulphas—*Sulphate of Morphia, U.S.*—Take of morphia, in powder, an ounce; distilled water half a pint; diluted sulphuric acid a sufficient quantity. Mix the morphia with the water, then carefully drop in the acid, constantly stirring, till the morphia is saturated and dissolved; evaporate the solution by means of a water-bath, so that it may crystallize upon cooling. Dry the crystals upon bibulous paper.—*United States.*

Sulphate of morphia is in snow-white feathery crystals, which are wholly soluble in water. Its solution yields with chloride of barium a white precipitate insoluble in nitric acid. It is effected by heat, nitric acid, and sesquichloride of iron in the same manner as pure morphia.

Codéine—*Codeia, P.*—Take of opium 25,000 parts, chloride of calcium 3,000 parts, solution of ammonia Q.S; exhaust the opium, as in the preparation of morphia, by cold water; filter and evaporate the liquors to the consistence of a thin syrup, and add the chloride of calcium dissolved in water. Filter the liquor to separate the precipitate which is formed, and which consists principally of meconate and sulphate of lead; acidulate the bright solution with a little hydrochloric acid; filter through animal charcoal, and evaporate until the liquor has the density of 1075. Set aside in a cool place, that it may crystallize; press the crystalline mass in linen, redissolve in 20 parts of boiling water, and throw in a slight excess of ammonia to precipitate the morphia. Filter the liquor when it has cooled, and concentrate, that it may crystallize afresh; collect the product, which consists of hydrochlorate of codeia and morphia; and, if not perfectly white, dissolve again, treat with animal charcoal, and crystallize as before. The salt is then to be reduced to powder, and decomposed by triturating in a mortar with a hot solution of caustic potash, and washing on a filter with a little water, to remove the excess of alkali which retains in solution the morphia, that salt not being entirely precipitated by ammonia. Lastly, to obtain the codeia in pure crystals, it must be dissolved in hot sulphuric ether, by the spontaneous evaporation of which codeia crystallizes in rhombic prisms. Pure codeia is soluble in alcohol, ether, and boiling water; it is insoluble in a weak, cold solution of potash; it is not decomposed by iodic acid, and does not become blue with persalts of iron; calcined in the air, it should leave no residue. Fifty pounds of opium yield under 3½ oz. of codeia.—*Paris Codex.*

Quinæ Disulphas—*Disulphate of Quina, L.*—Take of heart-leaved cinchona, bruised, 7 pounds; sulphuric acid, 9 ounces; purified animal charcoal, 2 ounces; hydrated oxide of lead, solution of ammonia, distilled water, each as much as may be sufficient; mix 4 ounces and 2 drachms of the sulphuric acid with 6 gallons of the distilled water, and to these add the cinchona; boil for an hour, and strain; in like manner again boil what remains in acid and water, mixed in the same proportions, for an hour, and again strain. Lastly, boil the cinchona in 8 gallons of distilled water for three hours, and strain; wash what remains frequently with boiling distilled water. To the mixed liquors add oxide of lead while moist, nearly to saturation; pour off the supernatant liquor, and wash what is precipitated with distilled water. Boil the liquors for a quarter of an hour, and strain; then gradually add solution of ammonia to precipitate the quina; wash this until nothing alkaline is perceptible; let what remains be saturated with the rest of the sulphuric acid, diluted; afterwards digest with 2 ounces of animal charcoal, and strain. Finally, the charcoal being thoroughly washed, evaporate the liquor cautiously, that crystals may be produced.—*London.*

Quinæ Sulphas—*Sulphate of Quinine, E.*—Take of yellow bark, in coarse powder, 1 pound; carbonate of soda, 8 ounces; sulphuric acid, half a fluid ounce; purified animal charcoal, 2 drachms. Boil the bark for an hour in 4 pints of water in which half the carbonate of soda has been dissolved; strain and express strongly through linen or calico; moisten the residuum with water, and express again, and repeat this twice. Boil the residuum for half an hour with 4 pints of water and half the sulphuric acid; strain, express strongly, moisten with water, and express again. Boil the residuum with 3 pints of water and a fourth part of the acid; strain and squeeze as before. Boil again the residuum

with 3 pints of water and a fourth part of the acid; strain and squeeze as before. Boil again the residuum with the same quantity of water and acid; strain and squeeze as formerly. Concentrate the whole acid liquids to about a pint; let the produce cool; filter it, and dissolve in it the remainder of the carbonate of soda. Collect the impure quina on a cloth, wash it slightly, and squeeze out the liquor with the hand. Break down the moist precipitate in a pint of distilled water, add one fluid scruple of sulphuric acid, heat it to 212°, and stir occasionally. Should any precipitate retain its grey colour, and the liquid be neutral, add sulphuric acid, drop by drop, constantly stirring, till the grey colour disappears. Should the liquid redden litmus, neutralize it with a little carbonate of soda. Should crystals form on the surface, add boiling distilled water to dissolve them; filter through paper, preserving the funnel hot; set the liquor aside to crystallize; collect and squeeze the crystals; dissolve them in a pint of distilled water heated to 212°; digest the solution for fifteen minutes with the animal charcoal; filter and crystallize as before. Dry the crystals with a heat not exceeding 140°. The mother liquor of each crystallization will yield a little more salt by concentration and cooling.—*Edinburgh.*

Quinæ Sulphas—*Sulphate of Quinine, D.*—Take of yellow cinchona bark, in coarse powder, 4 pounds; distilled water 8 (old wine) pints; diluted sulphuric acid 2 ounces. Digest them in a proper vessel, with a moderate heat and frequent stirring, for four hours, and strain. Digest the bark again with an equal quantity of water, and do this thrice. Add to the united liquors enough fresh-burnt and slacked lime to saturate the acid. Dry on blotting-paper the precipitate which subsides. Digest this for six hours with 3 pints of rectified spirit, and filter. Repeat this thrice, with an equal quantity of spirit. Distil the spirituous liquors to dryness with a vapour-bath heat. Add diluted sulphuric acid gradually to the residuum till there is a very faint excess of acid, and obtain crystals by concentration and cooling.—*Dublin.*

Quiniæ Sulphas—*Sulphate of Quinia, U.S.*—Take of yellow bark, in coarse powder, 4 pounds; muriatic acid 3 fluid ounces; lime, in powder, 5 ounces; water 5 gallons; sulphuric acid, alcohol, animal charcoal, each a sufficient quantity. Boil the bark in one third of the water mixed with one third of the muriatic acid, and strain through linen. Boil the residue twice successively with the same quantity of water and acid as before, and strain. Mix the decoctions, and, while the liquor is hot, gradually add the lime, previously mixed with 2 pints of water, stirring constantly until the quinia is completely precipitated. Wash the precipitate with distilled water, and, having pressed and dried it, digest it in boiling alcohol. Pour off the liquor and repeat the digestion several times until the alcohol is no longer rendered bitter. Mix the liquors and distil off the alcohol, until a brown viscid mass remains. Upon this substance removed from the vessel pour about half a gallon of distilled water, and, having heated the mixture to the boiling point, add as much sulphuric acid as may be necessary to dissolve the impure alkali; then add an ounce and a half of animal charcoal, boil for two minutes, filter the liquor while hot, and set it aside to crystallize. Should the liquor before filtration be entirely neutral, acidulate it very slightly with sulphuric acid; should it, on the contrary, change the colour of litmus paper to a bright red, add more animal charcoal, separate the crystals from the liquor, dissolve them in boiling water slightly acidulated with sulphuric acid, add a little animal charcoal, filter, and set aside to crystallize; wrap the crystals in bibulous paper, and dry them with a gentle heat. The mother waters may be made to yield an additional quantity of sulphate of quinia by precipitating the quinia with solution of ammonia, and treating the precipitated alkali with water, sulphuric acid, and animal charcoal, as before.—*United States.*

Sulfate de Quinine—*Sulphate of Quinine, P.*—Take of yellow bark 1,000 parts, hydrochloric acid 64 parts, water 12,000, lime 100 parts; having reduced the bark to a coarse powder, boil it with one third of the water mixed with one third of the hydrochloric acid; strain off the liquor, and boil the residue twice more, employing the same quantity of water and acid; mix the decoctions in an upright vessel, and, having heated them, add the lime, previously mixed with five or six times its weight of water, so as to form a thin milk, until the quinine is entirely precipitated; wash the precipitate, let it drain on linen, press strongly, and dry by steam; digest then in boiling alcohol of specific gravity .850; five or six such digestions are necessary to deprive the calcareous precipitate of all the quinine which it contains; mix all the alcoholic liquors, and distil with a water-bath to dryness; the residue of this distillation is impure quinine. Thus obtained, the quinine is more or less brown, according to the quantity of colouring matters it contains, and in this state it is fit to make the different salts of quinine used in medicine; about 53 pounds are obtained from 1,000 pounds of bark employed. To convert the quinine into sulphate, place it in a vessel with about 1,000 parts of boiling water, and add sufficient sulphuric acid to dissolve it; then add animal charcoal, in powder, 30 parts; boil for two minutes, and filter; the sulphate crystallizes as the liquor cools. Should the addition of the charcoal entirely saturate the acid, it will be necessary to acidulate slightly before filtration; if, on the contrary, it should change turmeric paper to a bright red, add more animal charcoal to absorb the excess of acid. The sulphate of quinine obtained from the first crystallization is not sufficiently pure and white, and requires to be dissolved in boiling water, slightly acidulated with sulphuric acid, a small quantity of animal charcoal being added; filter, and set aside to crystallize; wrap the crystals in bibulous paper, and dry with a gentle heat not exceeding 80°. It is often necessary to crystallize a third time to obtain the quinine of sufficient whiteness. The mother liquors always retain a quantity of sulphate of quinine, which is to be precipitated with ammonia or carbonate of soda, treated with dilute sulphuric acid and charcoal, crystallized, and added to the other. —*Paris Codex.*

All the processes for preparing disulphate or sulphate of quina consist substantially in exhausting yellow bark of its bitterness by water acidulated with sulphuric or muriatic acid, decomposing the solution with some inorganic base, and combining the precipitate, which is impure quina, with sulphuric acid. The details of the various methods that have been made public differ exceedingly; but the main objects aimed at by all of them are to exhaust the bark readily, to avoid as much as possible the use of the expensive menstruum, rectified spirit, and to simplify the steps for purifying the quina and its sulphate. The quantity obtained from yellow bark varies greatly with its quality. Some specimens yield scarcely one per cent. A gentleman in London, who manufactures it largely, informed me that the extremes he obtained were 25 and 50 ounces from 100 pounds avoirdupois; that is, between $\frac{1}{2}$ and 3 per cent.—Christison.

"Disulphate of quina crystallizes in delicate acicular crystals, inodorous, and impressing a bitter taste on the palate. They require for their solution 740 parts of water at 60°, and 30 parts at 212°. They are much more soluble when the water is acidulated with sulphuric acid; they dissolve in 80 parts of cold alcohol of sp. gr. .850; exposed to the air they effloresce slightly; they melt at about 240°, become red at a higher temperature, at a red heat are charred, and by degrees altogether dispersed."

Disulphate of quina is very liable to adulteration; the substances which are generally employed for this purpose are sulphate of lime, gum, sugar or mannite, starch, fatty matters, and sulphate of cinchonia. By the application of the tests of the Edinburgh Pharmacopœia, the freedom from any of these impurities, except that with the salt of cinchonia, will be ascertained:—"A solution of ten grains in one fluid ounce of distilled water, and two or three drops of sulphuric acid, if decomposed by a solution of half an ounce of carbonate of soda in two waters, and heated till the precipitate shrinks and fuses, yields on cooling a solid mass, which when dry weighs 7.4 grains, and in powder dissolves entirely in solution of oxalic acid." The presence of a salt of cinchonia, from which but few specimens are free in the present day, may be detected by precipitating a solution of the salt in water with ammonia, collecting the precipitate, and boiling in rectified spirit; if any cinchonia be present it will be deposited in crystals as the liquor cools. Another convenient formula for testing sulphate of quina is the following:—Twenty parts of boiling water acidulated with sulphuric acid; dissolve it entirely and without any floating oily globules appearing, if there be no fatty matter present; the solution when cold does not become blue with tincture of iodine if free of starch; it does not precipitate with oxalic acid if free of lime; and, when treated with solution of baryta, so long as a precipitate forms, which precipitate is a mixture of quina and sulphate of baryta, the liquid has not a sweet taste if free of sugar or mannite. *Salicin* and caffein are stated to be frequently employed on the Continent of late years for the adulteration of disulphate of quina, but they are too dear in this country to be used for that purpose.

Disulphate of quina is incompatible with alkalis and their carbonates, lime-water, chloride of calcium, the salts of baryta, those of the oxide of lead, and astringent vegetable infusions and decoctions. It may be administered with sulphate of iron and all the sulphates, and with acetate and hydrochlorate of morphia.—A. T. Thompson.

Monosulphate of Quina—Neutral Sulphate of Quina.—This salt is readily formed by adding sulphuric acid to the disulphate. It is sometimes produced in the manufacture of the latter salt, and remains, on account of its greater solubility, in the mother liquor. It is also produced when we dissolve the disulphate in an aqueous liquid acidulated with sulphuric acid. This salt crystallizes in square prisms. It reddens litmus, but is not acid to the taste. It is soluble in 22 parts of water at 55° F., or 11 parts at 75° F. It is also soluble in alcohol.—Pereira.

There is an article named amorphous quinine, which has been made the subject of a patent, and which has caused a great chemical controversy. It was discovered by Baron Liebig, and possesses similar atomic constitution to quina.

Chlorhydrate de Quinine—*Hydrochlorate of Quinine, P.*—Take of sulphate of quinine 100 parts; crystallized chloride of barium 30 parts. Dissolve the quinine in a sufficient quantity of boiling distilled water, and add to it the chloride of barium, previously dis-

solved. Immediately a precipitate of sulphate of barytes is formed, filter, and evaporate the liquor with a gentle heat, until crystals appear on the surface. Put it aside in a cool place, and the hydrochlorate of quinine crystallizes on cooling in needle-shaped crystals. It is more soluble than the sulphate. Nitrate of quinine is prepared in the same way, only substituting nitrate of barytes for chloride of barium.—*Paris Codex.*

Acétate de Quinine—*Acetate of Quinine, P.*—Take of pure quinine 100 parts; distilled water 150 parts; acetic acid, Q.S.; powder the quinine and mix with the water; heat the mixture gently, not sufficiently to fuse the quinine, and add sufficient acetic acid to dissolve the quinine, and to render the liquor very slightly acid. Filter the solution while hot, and set by in a cool place. Acetate of quinine crystallizes in flat needles, and with a pearly lustre. By concentrating the mother liquor the rest of the acetate is obtained. The citrate and tartrate of quinine are prepared the same way.—*Paris Codex.*

Hydro-cyano-Ferrate de Quinine—*Hydro-Ferrocyanide of Quinine, P.*—Take of sulphate of quinine 100 parts; ferrocyanide of potassium 31 parts; distilled water 2,500 parts. Boil together for several minutes the sulphate of quinine and ferrocyanide of potassium in a greater portion of the water. The salt of quinine which forms swims on the surface of the liquid; separate it after it has cooled, and wash it with the rest of the distilled water. To render it more pure and crystalline, dissolve it in boiling alcohol. By cooling, and the spontaneous evaporation of the alcohol, it crystallizes in needles. This salt has always a slight greenish tint.—*Paris Codex.*

The French Pharmacopœia *alone* gives directions for the preparation of the hydrochlorate, acetate, and hydro-ferrocyanide of quinine: they are all expensive preparations, and do not appear to be in any respect superior to the disulphate.

Cinchonine—*Cinchonia, P.*—The process for obtaining cinchonine differs little from that described under the head of "Sulfate de Quinine," for obtaining impure quinine, only that the grey or pale bark is used instead of the yellow. The calcareous precipitate is to be treated with boiling alcohol, of sp. gr. .820, several times, and after each treatment the alcohol, saturated with cinchonia, is to be filtered while hot. One part of cinchonia crystallizes by cooling; by evaporating the alcohol a second quantity is obtained less pure than the first; and by evaporating to dryness you obtain the whole of the cinchonia mixed with some quinine. The separation of these two alkaloids is easily effected by macerating the mass in cold alcohol, of sp. gr. 900, which dissolves the quinine without touching the cinchonia. And lastly, for obtaining the cinchonia perfectly pure and white, it must be dissolved in boiling alcohol, and shaken with a small quantity of animal charcoal; filter the solution still hot, and the cinchonia crystallizes on cooling.—*Paris Codex.*

Crystallized cinchonia is anhydrous, colourless, inodorous, and bitter. When heated this salt does not fuse until it begins to decompose. It is soluble in 2,500 parts of cold water, and in a somewhat less quantity of boiling water; the hot solution becomes opaque as it cools. It is soluble in alcohol, especially when hot; from the solution, on cooling, crystals are obtained. Its solubility in alcohol is, however, less than that of quina in this fluid. It is soluble in ether, but much less so than in alcohol. It dissolves, though slightly, in fixed oils, somewhat more so in oil of turpentine, and readily in diluted acids.—Pereira.

Sulfate de Cinchonine—*Sulphate of Cinchonia, P.*—Take of pure cinchonia 100 parts; diluted sulphuric acid Q.S. Mix the cinchonia with boiling water, and add the diluted acid until the liquors show a slight acid reaction with litmus paper; filter, and evaporate with a gentle heat, and sulphate of cinchonia will crystallize in four-sided prisms hard and transparent. In this way are prepared all the salts of cinchonia.—*Paris Codex.*

Strychnia—*Strychnia, L.*—Take of nux vomica, bruised, 2 pounds; rectified spirit 3 gallons; diluted sulphuric acid, magnesia, solution of ammonia, each, as much as may be sufficient. Boil the nux vomica with a gallon of the spirit for an hour in a retort to which a receiver is adapted. Pour off the liquor, and again and a third time boil what remains with another gallon of spirit, and the spirit recently distilled, and pour off the liquor. Press the nux vomica, and let the spirit distil from the mixed and strained liquors. Evaporate what remains to the proper consistence of an extract. Dissolve this in cold water, and strain. Evaporate the liquor with a gentle heat until it has the consistence of a syrup. To this while warm gradually add the magnesia to saturation, shaking them together, set it aside for two days, then pour off the supernatant liquor. Press what remains wrapped in a linen cloth. Boil it in spirit, then strain, and let the spirit distil. Add to the residue a very little diluted sulphuric acid mixed with water, and macerate with a gentle heat. Set it aside for twenty-four hours, that crystals may form. Press and dissolve them. Afterwards to these, dissolved in water, add ammonia, frequently shaking them, that the strychnia may be precipitated. Lastly, dissolve this in boiling spirit, and set aside, that pure crystals may be produced.—*London.*

Strychnia—*Strychnia, E.*—Take of nux vomica 1 pound; quick lime 1 ounce and a half; rectified spirit a sufficiency. Subject the nux vomica for two hours to the vapour of steam, chop or slice it, dry it thoroughly in the vapour-bath or hot-air press, and immediately grind it in a coffee-mill. Macerate it for twelve hours in 2 pints of water, and boil it; strain through linen or calico, and squeeze the residuum; repeat the maceration and decoction twice with a pint and a half of water. Concentrate the decoction to the consistence of thin syrup; add the lime in the form of milk of lime; dry the precipitate in the vapour-bath, pulverize it, and boil it with successive portions of rectified spirit till the spirit ceases to acquire a bitter taste. Distil off the spirit till the residuum be sufficiently concentrated to crystallize on cooling. Purify the crystals by repeated crystallizations.—*Edinburgh.*

Strychnia—*Strychnia, U.S.*—Take of nux vomica, rasped, 2 pounds; lime in powder 6 ounces; muriatic acid 3 fluid ounces; alcohol, diluted sulphuric acid, solution of ammonia, purified animal charcoal, water, each a sufficient quantity. Digest the nux vomica in two gallons of water, acidulated with a fluid ounce of muriatic acid, for twenty-four hours; then boil for two hours, and strain with expression through a strong linen bag; boil the residuum twice successively in the same quantity of acidulated water, each time straining as before. Mix the decoctions, and evaporate to the consistence of thin syrup; then add the lime, previously mixed with a pint of water, and boil for ten minutes, frequently stirring. Pour the mixture into a double linen bag, and, having washed the precipitate well with water, press, dry, and powder it. Treat the powder repeatedly with boiling alcohol, until deprived of its bitterness; mix the liquors, and distil off the alcohol by means of a water-bath. Mix the residue with water, and, having applied heat, drop in sufficient diluted sulphuric acid to neutralize and dissolve the strychnia; then add purified animal charcoal, boil for a few minutes, filter, evaporate, and crystallize. Dissolve the crystals in water, and add sufficient solution of ammonia to precipitate the strychnia. Lastly, dry the precipitate on bibulous paper.—*United States.*

Strychnine—*Strychnia, P.*—Take of nux vomica 1,000 parts, quick lime 128 parts, alcohol of sp. gr. 850, Q.S.; macerate and boil the nux vomica in water three separate times; evaporate the mixed liquors to the consistence of a thin syrup, and add, for every pound of nux vomica, 2 ounces of lime mixed with a little water; dry the precipitate in the vapour-bath, or by hot air, and boil in several successive portions of alcohol. By evaporation and cooling, strychnia crystallizes in coloured octohedres, which may be rendered sufficiently pure for employment in medicine by three or four solutions and crystallizations with alcohol; when not purified, it retains a quantity of brucia.—*Paris Codex.*

The strychnia of the shops is obtained only, at present, from nux vomica. But it exists in larger proportion in the Saint Ignatius bean; and I am inclined to think, from some trials, that it may be extracted more profitably from the bark of the nux vomica tree than from its seeds. The process for preparing it from nux vomica consists essentially in first obtaining, either directly or through the medium of an alcoholic extract, a concentrated watery solution of its active salt, the igasurate of strychnia, in union with various other principles; in then decomposing this salt by means of caustic lime or magnesia; and, lastly, in dissolving from the precipitate, by boiling rectified spirit, an impure strychnia, which is subsequently purified by repeatedly crystallizing it from its spirituous solution, with or without the aid of animal charcoal as a decolourizing agent.—Christison.

"Strychnia, when pure, crystallizes in colourless minute octohedrons; but, as met with in commerce, it is usually in the form of a dirty white granular powder; it is unalterable by exposure to the air, odourless, and so extremely bitter as to impart that taste to 600,000 times its weight of water; it is soluble in about 6,600 times its weight of cold, and 2,500 times its weight of boiling, water. It dissolves in diluted alcohol, but is insoluble in absolute alcohol and in ether. It acts like the alkalis on vegetable colours, and neutralizes acids, and forms salts with them."

Strychnia, as met with in the shops, is never free from adulteration, and always contains brucia and colouring matter, and sometimes lime and magnesia; brucia is detected by its being reddened by nitric acid, and, according as it is more or less coloured, *this* adulteration is more or less abundant; that it is sufficiently pure for medical purposes may be known by the following test of the Edinburgh Pharmacopœia:—"A solution of 10 grains in 4 fluidrachms of water by means of 1 fluidrachm of pyroligneous acid, when decomposed by 1 fluid ounce of concentrated solution of carbonate of soda, yields, on brisk agitation, an adhesive mass, weighing, when dry, 10 grains, and entirely soluble in solution of oxalic acid." The tests of the London Pharmacopœia are:—"Readily dissolves in boiling alcohol, but not so in water. It melts by heat, and, if it be more strongly urged, it is entirely dissipated."

Strychnia is extremely poisonous; one eighth of a grain is quite sufficient to kill a dog, and a quarter of a grain produces a decided

effect upon a man; it is incompatible with acids and acidulous salts, which neutralize it. It probably decomposes some earthy and metallic salts by combining with their acid.—PHILLIPS.

SULFATE DE STRYCHNINE—*Sulphate of Strychnia, P.*—Take of strychnia 100 parts; water 500 parts; sulphuric acid Q.S. Powder the strychnia and mix with boiling water; add sufficient sulphuric acid, diluted with four or five parts of water, to dissolve it perfectly; filter the liquor and set aside, that the sulphate may crystallize on cooling. In this way all the salts of strychnia are prepared.—*Paris Codex.*

BRUCINE—*Brucia, P.*—Take of false angustura bark Q.S. Reduce the bark to coarse powder, and macerate it three times with distilled water, acidulated with hydrochloric acid; evaporate the liquors until they precipitate abundantly with ammonia; then add a milk of lime, in the proportion of one ounce of lime for every pound of bark employed; wash the precipitate with a little cold water, and, having dried it, exhaust by boiling it three or four times in alcohol. Evaporate the alcohol and dissolve the residue in sulphuric acid, diluted with from 10 to 15 parts of water. The sulphate of brucia thus obtained must be redissolved in water, and decolourized by animal charcoal; after crystallization it must be again dissolved in 10 parts of boiling water, and the brucia is then to be precipitated by ammonia.—*Paris Codex.*

Brucia in the anhydrous form, as obtained by fusing it, has a waxy appearance; but when combined with water it is capable of crystallizing, the form of the crystals being oblique four-sided prisms; or sometimes the crystals have a nearly laminated appearance, something like boracic acid. Its taste is very bitter, though less so than that of strychnia; it is soluble in 850 parts of cold and 500 parts of boiling water; but the presence of colouring matter, of which it is difficult to deprive it, promotes its solubility. It is very soluble in alcohol, but is insoluble in ether and the fixed oils. Nitric acid assumes a fine red colour when added to brucia; deoxidizing agents, as sulphuretted hydrogen and sulphurous acid, decolourize this solution. Iodic and chloric acids produce the same phenomena as nitric acid. Chlorine communicates a red colour to brucia.—PEREIRA.

VERATRIA—*Veratria, L.*—Take of cevadilla, bruised, 2 pounds; rectified spirit 3 gallons; diluted sulphuric acid, solution of ammonia, purified animal charcoal, magnesia, each as much as may be sufficient. Boil the cevadilla with a gallon of the spirit for an hour in a retort to which a receiver is adapted; pour off the liquor, and again boil what remains with another gallon of spirit and the spirit recently distilled, and pour off the liquor; and let it be done a third time. Press the cevadilla and let the spirit distil from the mixed and strained liquors. Evaporate what remains to the proper consistence of an extract. Boil this three times or oftener in water, to which a little diluted sulphuric acid is added, and with a gentle heat evaporate the strained liquors to the consistence of a syrup. To this, when cold, put in the magnesia to saturation, frequently shaking them; then press and wash. Let this be done twice or three times; then dry what remains, and digest with a gentle heat in spirit twice or three times, and strain as often. Afterwards let the spirit distil. Boil the residue in water, to which a little sulphuric acid and animal charcoal are added, for a quarter of an hour, and strain. Lastly, the charcoal being thoroughly washed, evaporate the mixed liquors cautiously until they have become the consistence of a syrup, and pour into them as much ammonia as may be sufficient to precipitate the veratria. Separate this and dry it.—*London.*

VERATRIA—*Veratria, E.*—Take any convenient quantity of cevadilla, pour boiling water over it in a covered vessel, and let it macerate for twenty-four hours; remove the cevadilla, squeeze it, and dry it thoroughly with a gentle heat. Beat it now in a mortar, and separate the seeds from the capsules by brisk agitation in a deep narrow vessel. Grind the seeds in a coffee-mill, and form them into a thick paste with rectified spirit. Pack this firmly in a percolator, and pass rectified spirit through it till the spirit ceases to be coloured. Concentrate the spirituous solutions by distillation so long as no deposit forms; and pour the residuum while hot into twelve times its volume of cold water. Filter through calico, and wash the residuum on the filter so long as the washings precipitate with ammonia. Unite the filtered liquid with the washings, and add an excess of ammonia. Collect the precipitate on a filter, and wash it slightly with cold water, and dry it first by imbibition with filtering paper, and then in the vapour-bath. A small quantity may be got by concentrating the filtered ammoniacal fluid and allowing it to cool. Veratria thus obtained is not pure, but sufficiently so for medical use. From this coloured substance it may be obtained white, though at considerable loss, by solution in weak muriatic acid, decolourization with animal charcoal, and reprecipitation with ammonia.—*Edinburgh.*

VERATRIA—*Veratria, U.S.*—Take of cevadilla, bruised, 2 pounds; alcohol 3 gallons; diluted sulphuric acid, solution of ammonia, purified animal charcoal, magnesia, each a sufficient quantity. The directions are the same as ordered by the London Pharmacopœia.—*United States.*

VÉRATRINE—*Veratria, P.*—Take of cevadilla any convenient quantity; bruise it, and exhaust the soluble matter by several successive macerations in alcohol of sp. gr. 850. Distil off the spirit and evaporate to an extract; which extract dissolve in cold water, to separate a large quantity of fatty matters. Add to the solution sufficient subacetate of lead to precipitate the colouring matter. Filter and separate the excess of lead by sulphuric acid; and precipitate the veratria by solution of ammonia. Dry the precipitate, and dissolve in alcohol; distil to dryness the alcoholic solution, and the veratria will remain in the retort. To purify this, treat it with ether, which dissolves it, leaving a matter with a resinous appearance; in distilling the ethereal solution you obtain the veratria. To obtain it very white it is necessary to dissolve it in water acidulated with sulphuric acid, and filter through *purified* animal charcoal, and, lastly, precipitate the veratria by water made slightly alkaline with solution of ammonia; dry it in the air, or by a very gentle heat.—*Paris Codex.*

"The principal steps in the preparation of this alkaloid consist essentially in forming a concentrated tincture or extract; decomposing this by water, which dissolves the salt of veratria, and separates resin, oil, and colouring matter; and, finally, precipitating the veratria by ammonia. The alkaloid is not, *while impure*, so insoluble in water as it has been represented; and, therefore, care must be taken not to use this fluid too freely in washing it upon the filters."

Commercial veratria is pulverulent, odourless, and greyish or brownish white. But pure veratria is almost white, friable, solid, having the aspect of a resin. In cold water it is nearly insoluble, and boiling water dissolves only 1-1000 of its weight, but the solution is acrid; it is readily soluble in alcohol, ether, and especially weak acids, the last of which it neutralizes; it has an intensely acrid taste, and the smallest quantity applied to the lining membrane of the nose produces violent and dangerous sneezing.

On account of its very high price, and the want of well-defined external characters, the veratria of the shops is very subject to adulteration; it is always more or less adulterated with colouring matter; and there is unfortunately no good criterion for ascertaining its degree of purity.

Veratria is known by the intense red colour which it assumes when mixed with strong liquid sulphuric acid. Nitric acid renders it reddish, and forms with it a yellow solution. A solution of veratria in dilute acetic acid produces a whitish precipitate (tannate of veratria) with tinct. of nutgalls; a white one (hydrated veratria) with ammonia.—PEREIRA.

Incompatibles, see *Strychnia.*

EMÉTINE—*Emetina, P.*—Take of alcoholic extract of ipecacuanha and calcined magnesia, each 100 parts; dissolve the extract in 6 parts of cold water, and filter to separate the fatty matter; add to the solution the calcined magnesia, and evaporate to dryness with a gentle heat. Place the product upon a filter, and wash with 4 or 5 parts of very cold water; dry it again, and macerate in boiling alcohol. Evaporate the tincture and redissolve the residue in a little water acidulated with sulphuric acid; decolourize the solution with pure animal charcoal; then filter; precipitate the emetina with ammonia, and dry in the open air.—*Paris Codex.*

Emetina, as commonly met with, is a dark, pasty-looking substance, but when pure is white and pulverulent, inodorous, with a faint bitter taste, alkaline, very soluble in alcohol, sparingly soluble in water, and less so in ether.

PREPARATIONS FROM ANIMALS.

CARBO ANIMALIS PURIFICATUS—*Purified Animal Charcoal, L.*—Take of animal charcoal a pound; hydrochloric acid and water, each 12 fluid ounces; mix the hydrochloric acid with the water, and pour it gradually upon the charcoal; then digest for two days with a gentle heat, frequently shaking them; set by and pour off the supernatant liquor; then wash the charcoal very frequently with water, until nothing acid is perceptible; lastly, dry it.—*London.*

CARBO ANIMALIS PURIFICATUS—*Purified Animal Charcoal, E.*—Take of ivoryblack 1 pound; muriatic acid (commercial) and water, of each 12 fluid ounces; mix the acid and water; add gradually the ivoryblack, stirring occasionally; digest with a gentle heat for two days, agitating from time to time; then boil; dilute with 2 pints of water; collect the undissolved charcoal on a filter of linen or calico, and wash it with water till what passes through scarcely precipitates with solution of carbonate of soda. Heat the charcoal first moderately, and then to redness, in a closely covered crucible.—*Edinburgh.*

CARBO ANIMALIS PURIFICATUS.—*Purified Animal Charcoal, U.S.*—The quantities and directions the same as the London Pharmacopœia.—*United States.*

Purified animal charcoal is only adulterated with phosphate and carbonate of lime, owing to its being carelessly prepared. The London College indicates its effervescence with muriatic acid, and the precipitation of the muriatic solution by ammonia and its sesquicarbonate, as proofs of the presence of these impurities. Ammonia throws down phosphate of lime in the solution; sesquicarbonate of ammonia indicates muriate of lime derived from carbonate of lime in

the charcoal. The Edinburgh College recommends the process of incineration as a preferable test of purity. "When incinerated with its own volume of red oxide of mercury, it is dissipated, leaving only a scanty ash." Well-prepared charcoal does not leave above a 200th of spongy ash when treated in this way.—CHRISTISON.

CORNU USTUM—*Burnt Horn, L.*—Burn pieces of horn in an open vessel until they become perfectly white; then powder and prepare them in the same manner as directed with respect to chalk.—*London.*

CORNU CERVINI USTI PULVIS—*Powdered Calcined Hartshorn, D.*—Burn fragments of hartshorn till they become white, and then reduce them to very fine powder.—*Dublin.*

CORNE DE CERF CALCINÉE—*Calcined Hartshorn, P.*—Take the residue of the distillation of hartshorn, and calcine until it becomes perfectly white; that is to say, until the destruction of the organic matter is complete; a phosphate of lime is obtained, known and employed under the name of calcined hartshorn; reduce it to powder and levigate it with water, and, when it is perfectly powdered, dry and put by for use.—*Paris Codex.*

In this operation the whole of the gelatine of the horn is decomposed and dissipated, and the residue is phosphate of lime very nearly in a state of purity. It is white, tasteless, brittle, and pulverizable. It is insoluble in water, but soluble in most of the acids without decomposition, and is precipitated from them by ammonia, potash, and their carbonates in a gelatinous state, but unaltered in composition. The best test for it is the ammoniacal nitrate of silver, which, if the solution in nitric acid be neutralized so far as is possible without a permanent precipitate being occasioned, will throw down a lemon-yellow phosphate of silver.

TESTÆ PREPARATÆ—*Prepared Shells, L.*—Wash the shells, first freed from impurities, with boiling water; then prepare them in the same way as directed for chalk.—*London.*

Shells consist principally of carbonate of lime, but it is mixed with indurated albumen, which is the cause of the smell, resembling that of burnt horns, experienced when they are put into the fire. Prepared shells are harder than prepared chalk and less readily acted upon by acids, and probably the animal matter which they contain retards their action.—PHILLIPS.

ADEPS SUILLUS PREPARATUS—*Prepared Hogs' Lard, D.*—Let fresh hogs' lard, cut into small pieces, be melted by a moderate heat, and strained by pressing it through a linen cloth. Lard which is prepared by the dealers, and is preserved with salt, is to be melted with twice its weight of boiling water, and the mixture well stirred; it is then to be allowed to cool, when the lard may be separated.—*Dublin.*

GRAISSE DE PORC—AXONGE—*Hogs' Lard, P.*—Take of hogs' caul any convenient quantity. Separate the membrane and fleshy portions, and cut into small pieces; knead in cold water until it pours off clear. Beat in a marble mortar with a wooden pestle, and place in a tinned vessel over a gentle fire; when it is melted, and become quite clear, strain through a double linen bag; let it cool gradually; separate the moisture, melt again, and beat it continually with a spatula until it is cold. Put it in pots, and keep it in a cool place. Beef marrow and the fat of other animals are prepared the same way.—*Paris Codex.*

ADEPS OVILLUS PREPARATUS—*Prepared Suet, D.*—Prepared in the same manner as lard.—*Dublin.*

Good lard ought to be white, somewhat translucent, granular in appearance, yet smooth to the touch, of a sweetish taste, and without odour.

DISTILLED WATERS, &c.

Distilled waters may be prepared from fresh, and generally also from dried, vegetables. In the latter case only half the material should be used. They may also be prepared for the most part by agitating the volatile oils of the plants with water, and filtering the solution. But waters obtained in this way have seldom so fine a flavour as those obtained from the plants themselves.—*Edinburgh Pharmacopœia.*

AQUA DESTILLATA—*Distilled Water, L.*—Take of water 10 gallons. First, let 2 pints distil, which being thrown away, let 8 gallons distil. Keep the distilled water in a glass bottle.—*London.*

AQUA DESTILLATA—*Distilled Water, E.*—Take any convenient quantity of spring water; distil it from a proper vessel, rejecting the first twentieth part, and preserving the first half of the remainder.—*Edinburgh.*

AQUA DESTILLATA—*Distilled Water, D.*—Take of spring water 20 pounds. Put them into a glass retort, and, having rejected the first pound which comes over, let one gallon be distilled over with a gentle heat.—*Dublin.*

AQUA DESTILLATA—*Distilled Water, U.S.*—First distil 2 pints, and throw them away; then distil 8 gallons. Keep the distilled water in glass bottles.—*United States.*

EAU DISTILLÉE—*Distilled Water, P.*—Take of river or fountain water any quantity. Distil from a copper still, with a gentle heat; reject the first quart that comes over as less pure, and then distil over half the quantity employed. Distilled water is known to be pure when it is not altered by solutions of nitrate of silver, nitrate of barytes, oxalate of ammonia, bichloride of mercury, and sulphuretted hydrogen.—*Paris Codex.*

Rain and river water are the purest kinds of natural water, but they nevertheless contain a portion of carbonic acid gas, and minute quantities of carbonate of lime and chloride of calcium; in spring water, besides these ingredients, is found a small portion of chloride of sodium; well water, which is spring water obtained from a greater depth, holds in solution a much larger portion of carbonic acid, and several earthy salts, the principal of which are sulphate and carbonate of lime. By distillation water is freed from these ingredients, and rendered nearly pure; but it is tasteless and vapid, owing to the absence of the air which it contains in its natural state. The process should be conducted slowly, and with a moderate heat, and not continued longer than the time specified in the formulæ, otherwise a minute portion of the saline matter contained in the natural water passes over in the distillation.—A. T. THOMSON.

It is impossible to obtain pure distilled water unless a still be kept, for that and nothing else; a very small portion of sulphate of alumina will fix any ammonia there may be, and render the distilled water more pure.

AQUA ANETHI—*Dill Water, L.*—Take of dill, bruised, a pound and a half, proof spirit 7 fluid ounces, water 2 gallons. Let a gallon distil.—*London.*

AQUA ANETHI—*Dill Water, E.*—Take of anethum seeds, bruised, 18 ounces, water 2 gallons, rectified spirit 3 fluid ounces. Mix them together, and distil off one gallon.—*Edinburgh.*

AQUA ANETHI—*Dill Water, D.*—Take of dill seeds, bruised, a pound and a half, proof spirit 7 ounces, water 2 gallons. Distil 1 gallon.—*Dublin.*

Dill water has an unpleasant odour, and little pungency.

EAU DISTILLÉE D'ANIS—*Aniseed Water, P.*—Take of bruised aniseeds 2 pounds, water 2 gallons. Distil 8 pounds.—*Paris Codex.*

AQUA CARUI—*Caraway Water, L.*—Take of caraways, bruised, a pound and a half, proof spirit 7 fluid ounces, water 2 gallons. Let a gallon distil.—*London.*

AQUA CARUI—*Caraway Water, D.*—Prepared in the same way as dill water.—*Dublin.*

Caraway water possesses a considerable aromatic flavour and pungency, and may be used for the same purposes as dill water.

EAU DISTILLÉE DE RAIFORT—RAPHANI ARMORACIÆ—*Horseradish Water, P.*—Take of fresh horseradish root 2 pounds; water 10 pounds; cut the root into slices; mix with the water, and distil 4 pounds.—*Paris Codex.*

EAU DISTILLÉE DE COCHLEARIA—*Scurvy-grass Water, P.*—Take of fresh leaves of scurvy-grass, 2 pounds; water Q.S.; bruise the leaves, and distil with a gentle heat 2 pounds.—*Paris Codex.*

AQUA CINNAMOMI—*Cinnamon Water, L. and D.*—Take of cinnamon, bruised, a pound and a half, or oil of cinnamon 2 drachms; proof spirit 7 fluid ounces; water 2 gallons. Let a gallon distil.—*London and Dublin.*

AQUA CASSIÆ—*Cassia Water, E.*—Take of cassia bark, bruised, 18 ounces; water 2 gallons; rectified spirit 3 fluid ounces; mix them together, and distil off one gallon.—*Edinburgh.*

AQUA CINNAMOMI—*Cinnamon Water, E.*—This water is to be prepared with cinnamon in the same way as aqua cassiæ.—*Edinburgh.*

AQUA CINNAMOMI—*Cinnamon Water, U.S.*—Take of oil of cinnamon half a fluidrachm; carbonate of magnesia half a drachm; distilled water 2 pints; rub the oil of cinnamon first with the carbonate of magnesia, then with the water gradually added, and filter through paper.—*United States.*

EAU DISTILLÉE DE CANNELLE—*Cinnamon Water, P.*—Take of cinnamon bark 2 pounds; water 16 pounds; macerate for twelve hours, and distil with a gentle heat 8 pounds.—*Paris Codex.*

"Cinnamon water is slightly milky, and has the agreeable flavour and pungency of the cinnamon, without its astringency; but the oil being ponderous is apt to separate, leaving the water clear and nearly insipid."

AQUA FŒNICULI—*Fennel Water, L. and* D.—Take of fennel seeds, bruised, a pound and a half; proof spirit 7 fluid ounces; water 2 gallons. Let a gallon distil.—*London and Dublin.*

AQUA FŒNICULI—*Fennel Water, E.*—This water is prepared with fennel seeds in the same way as aqua anethi.—*Edinburgh.*

AQUA FŒNICULI—*Fennel Water, U.S.*—Prepared in the same manner as cinnamon water, from oil of fennel.—*United States.*

Fennel water is rarely, if ever, employed.

AQUA FLORUM AURANTII—*Orange Flower Water, L.*—Take of orange flowers 10 pounds; proof spirit 7 fluid ounces; water 2 gallons. Let a gallon distil.—*London.*

EAU DISTILLÉE DE FLEURS D'ORANGER—*Orange Flower Water, P.*—Take of fresh-picked orange flowers 10 pounds; water Q.S. Place the flowers on a pierced division placed in the upper part of a

retort, in which is placed beforehand the necessary quantity of water; distil into a proper vessel for separating the oil from the water until you have obtained 20 pounds of water.—*Paris Codex.*

Eau Distillée de Laitue—*Lettuce Water, P.*—Take of fresh lettuces (lactuca sativa) 10 pounds; water 20 pounds; bruise the lettuces, and with a moderate heat distil 10 pounds.—*Paris Codex.*

Aqua Laurocerasi—*Cherry Laurel Water, E.*—Take of fresh leaves of cherry-laurel a pound; water 2½ pints; compound spirit of lavender an ounce; chop down the leaves, mix them with the water, distil off one pint, agitate the distilled liquor well, filter it if any milkiness remain after a few seconds of rest, and then add the lavender spirit.—*Edinburgh.*

Aqua Laurocerasi—*Laurel Water, D.*—Take of the fresh leaves of the prunus lauro-cerasus 1 pound; water 3 pints; distil 1 pint, and add 1 ounce of rectified spirit and of compound spirit of lavender.—*Dublin.*

Eau Distillée de Laurier Cerise—*Cherry Laurel Water, P.*—Take of the fresh leaves of the cherry-laurel 2 pounds; water 4 pounds; bruise the leaves, and with a very gentle heat distil 2 pounds.—*Paris Codex.*

This is a weak solution of hydrocyanic acid.

Eau Distillée de Lavande—*Lavender Water, P.*—Take of fresh lavender flowers 2 pounds; water Q.S. Distil 4 pounds.—*Paris Codex.*

Aqua Menthæ Piperitæ—*Peppermint Water, L. and D.*—Take of peppermint, dried, 2 pounds; or oil of peppermint two drachms; proof spirit 7 fluid ounces; water 2 gallons. Let a gallon distil.—*London and Dublin.*

Aqua Menthæ Piperitæ—*Peppermint Water, E.*—This water is prepared as aqua menthæ viridis.—*Edinburgh.*

Aqua Menthæ Piperitæ—*Peppermint Water, U.S.*—Prepared in the same way as aqua cinnamomi, with oil of peppermint.—*United States.*

Eau Distillée de Menthe Poivrée—*Peppermint Water, P.*—Take of the tops of fresh peppermint 2 pounds; water Q.S. Distil carefully 2 pounds.—*Paris Codex.*

"Peppermint has the flavour and taste of the plant in a considerable degree. It is sometimes used alone as a carminative."

Aqua Menthæ Pulegii—*Pennyroyal Water, L. and D.*—Prepared in the same way as peppermint water.—*London and Dublin.*

Aqua Pulegii—*Pennyroyal Water, E.*—This distilled water is prepared like aqua menthæ viridis.—*Edinburgh.*

Pennyroyal water has the taste and flavour of the green herb.

Aqua Menthæ Viridis—*Spearmint Water.—London.*

Aqua Menthæ Sativæ—*Spearmint Water.—Dublin.*

Prepared in the same way as peppermint water, but when the fresh herb is employed, in distilling either that or these, double the weight is to be used.

Aqua Menthæ Viridis—*Spearmint Water, E.*—Take of spearmint 4 pounds, if fresh; 2 pounds, if dry; water 2 gallons; rectified spirit 3 fluid ounces. Mix them, and distil off one gallon.—*Edinburgh.*

Aqua Menthæ Viridis Piperitæ—*Spearmint Water, U.S.*—In the same manner as cinnamon water from oil of spearmint.—*United States.*

Aqua Pimentæ—*Pimenta Water, L. and D.*—Take of pimenta, bruised, a pound, or oil of pimenta 2 drachms; proof spirit 7 fluid ounces; water 2 gallons. Let a gallon distil.—*London and Dublin.*

Aqua Pimentæ—*Pimenta Water, E.*—Take of pimenta, bruised, 1 pound; water 2 gallons; rectified spirit 3 fluid ounces. Mix them, and distil off one gallon.—*Edinburgh.*

This water has the odour and aromatic quality of the Jamaica pepper, but is not very agreeable to the taste. It is used as a carminative.

Aqua Rosæ—*Rose Water, L.*—Take of damask roses 10 pounds; proof spirit 7 fluid ounces; water 2 gallons. Let a gallon distil.—*London.*

Aqua Rosæ—*Rose Water, E.*—Take of petals of rosa centifolia 10 pounds; water 2 gallons; rectified spirit 3 fluid ounces. Mix them, and distil off one gallon. The petals should be preferred when fresh; but it also answers well to use those which have been preserved by beating them with twice their weight of muriate of soda.—*Edinburgh.*

Rose leaves mixed and closely packed with *half their weight* of salt will keep well for years; if the cask or vessel has a false bottom, to allow the liquor that collects to run off, so much the better.—Ed.

Aqua Rosæ—*Rose Water, D.*—Take of fresh petals of the damask rose, freed from their claws, 8 pounds; water, a sufficient quantity to prevent any empyreuma. Distil a gallon.—*Dublin.*

Aqua Rosæ—*Rose Water, U.S.*—Take of fresh hundred-leaved roses 8 pounds; water 2 gallons. Mix them, and distil a gallon.—*United States.*

Eau de Roses—*Rose Water, P.*—Take of petals of rosa centifolia 2 pounds; water Q.S. Distil 2 pounds.—*Paris Codex.*

Rose water when prepared to keep for some months should be distilled twice—first from the leaves, and then, when the still has been well cleaned, and the worm washed through, it should be rectified, to free it from the mucilage, &c., that pass over the first time. It should be kept in a cool place. It has the agreeable odour of the rose in great perfection when properly prepared; which, however, is seldom the case, except when it is made on a large scale.

Aqua Sambuci—*Elder Water, L.*—Take of elder flowers 10 pounds, or oil of elder 2 drachms; proof spirit 7 fluid ounces; water 2 gallons. Let a gallon distil.—*London.*

Aqua Sambuci—*Elder Water, E.*—Take of elder flowers, fresh, 10 pounds; water 2 gallons; rectified spirit 3 fluid ounces. Mix them, and distil off 1 gallon.—*Edinburgh.*

According to Dr. Lewis, elder flowers yield by distillation a very small quantity of a viscid oil; the use of the flowers is greatly to be preferred.—Phillips.

This water also requires a second distillation, without which it will not keep any time.

The Paris Codex directs the following waters to be prepared: borage, plantain, pellitory, and centaury water, after the manner of lettuce water. Cress water, after the manner of scurvy-grass. Peach and almond water, after the manner of cherry-laurel. Red poppy water, after the manner of rose. Hyssop, mint, and mugwort water, after the manner of peppermint. Sage, thyme, wormwood, tansy, and ground ivy water, after the manner of lavender. Parsley seed, fennel seed, angelica seed, star aniseed, juniper berry, and valerian water, after the manner of aniseed. Sassafras, cascarilla, and clove water, after the manner of cinnamon.

Spirit of wine is now generally omitted in preparing the distilled waters, as recommended by the London and Edinburgh Pharmacopœias; it has been ascertained by experiment that it assists the water to turn sour, and is itself converted into acetic acid by the action of vegetable matter and air. It should also be remembered not to filter through magnesia, as a portion of it dissolves, and renders the water a bad solvent for articles already sparingly soluble.—Ed.

Medicated Waters.

Aqua Acidi Carbonici—*Carbonic Acid Water, U.S.*—By means of a forcing-pump throw into a suitable receiver nearly filled with water a quantity of carbonic acid equal to five times the bulk of the water. Carbonic acid is obtained from marble by means of dilute sulphuric acid.—*United States.*

Eau Gazeuse Simple—*Aërated Water, P.*—Take of pure water 1 volume, carbonic acid gas 5 volumes. Charge the water with the carbonic acid gas by means of a force-pump, and put the gaseous solution into twenty ounce bottles; cork tightly, and keep in a cool place. By putting 2 ounces of syrup of lemons into each bottle, before the charged water, you make the agreeable drink called "lemonade gazeuse," or aërated lemonade. By varying the syrup you can produce a variety of pleasant drinks at once sweet and acidulous.—*Paris Codex.*

Aqua Camphoræ—*Camphor Water, U.S.*—Take of camphor 2 drachms, alcohol 40 minims, carbonate of magnesia a drachm, distilled water 2 pints. Rub the camphor first with the alcohol, afterwards with the carbonate of magnesia, and, lastly, with the water gradually added; then filter through paper.—*United States.*

Eau Camphrée—*Camphor Water, P.*—Take of refined camphor 4 parts, distilled water 500 parts. Reduce the camphor into powder in a marble mortar, by the aid of a little alcohol, and add the water; set by in a well-corked bottle for twenty-four hours, shaking frequently; filter and preserve in well-stopped bottles. Every ounce of water dissolves nearly two grains of camphor.—*Paris Codex.*

Eau Ethérée Camphrée—*Ethereal Camphorated Solution, P.*—Take of refined camphor 8 parts, sulphuric ether 24 parts, distilled water 470 parts. Mix the ether and the camphor (bruised) in a glass vessel, with a tube from the bottom (a separating funnel); when the camphor is dissolved, add the water, and agitate occasionally for twenty-four hours; when it is required for use, draw from the bottom the necessary quantity. Every ounce contains nearly nine grains of camphor and twenty-five grains of ether.—*Paris Codex.*

Aqua Chlorinii—*Chlorine Water, D.*—Take of dry muriate of soda 100 parts, oxide of manganese 30 parts, sulphuric acid 87 parts, and water 124 parts. Add the acid gradually to the water, and when the mixture is cold pour it on the muriate of soda, and the oxide of manganese reduced to fine powder, mixed carefully, and put into a retort; then with a proper apparatus, by means of a gentle heat, moderately augmented, transmit the gas liberated from the mixture through two hundred parts of distilled water, until the effervescence ceases in the retort.—*Dublin.*

The saturated solution of chlorine of the Dublin College has a peculiar suffocating odour, and a harsh, styptic, but not acid taste. Its colour is a very pale yellowish green; it destroys all the vegetable colours, rendering them white. It must be kept in opaque bottles

or in a dark place, for by the action of the solar rays part of the water is decomposed; the hydrogen of which, uniting with the chlorine, forms hydrochloric acid, which remains in solution in the water, while the oxygen is set free. At a temperature of 50° this solution contains about twice its volume of chlorine. The aqueous solution of chlorine acts on almost all the metals, forming chlorides.—A. T. Thomson.

Aqua Picis Liquidæ—*Tar Water, D.*—Take of tar 2 pints, water a gallon. Mix, stirring with a wooden rod for a quarter of an hour; then, after the tar shall have subsided, let the liquor be strained and preserved in well-stopped bottles.—*Dublin.*

Eau de Goudron—*Tar Water, P.*—Take of tar 1 pound; water 30 pounds; mix in an earthern pan, stirring frequently with a wooden spatula, during eight or ten days. Let it settle, and decant.—*Paris Codex.*

"Water dissolves a portion of tar, and is impregnated with empyreumatic oil, a small portion of resinous matter, and acetic acid, the components of the tar. The solution has the colour of madeira wine, and a sharp empyreumatic taste."

Eau de Seltz Artificielle.—*Artificial Seltzer Water, P.*—Take of chloride of calcium, in crystals, 6 grains; chloride of magnesium, in crystals, 5 grains; chloride of sodium 20 grains; carbonate of soda, in crystals, 16 grains; phosphate of soda, in crystals, 1 and one third grain; sulphate of soda, in crystals, 1 grain; distilled water 20 ounces; carbonic acid gas 5 volumes. Dissolve the salts of soda in one half of the water, and the chlorides in the other; mix the solutions, and charge them with carbonic acid gas; receive the aërated water into bottles, and cork quickly. This is intended in lieu of natural Seltzer water, and as it contains more gas it is often preferred.—*Paris Codex.*

Eau Alkaline Gazeuse—*Alkaline Aërated Water, P.*—Take of bicarbonate of potash 4½ parts; distilled water 625 parts; carbonic acid gas 5 volumes. Dissolve the salt of potash in the water, charge with carbonic acid gas, and put into bottles. Every ounce contains in solution 4 grains of bicarbonate of potash.—*Paris Codex.*

Eau de Soude Carbonatée—*Soda Water, P.*—Take of bicarbonate of soda 20 grains; distilled water 20 ounces; carbonic acid gas 5 volumes. Proceed as with the former water.—*Paris Codex.*

Eau Artificielle de Vichy—*Artificial Vichy Water, P.*—Take of carbonate of soda, in crystals, 126 grains; chloride of sodium one third of a grain; chloride of calcium, in crystals, 11 grains; sulphate of soda, in crystals, 6 grains; sulphate of magnesia, in crystals, 3 grains; sulphate of iron, in crystals, one third of a grain; water, deprived of air, 20 ounces; carbonic acid gas 3½ volumes. Dissolve separately the salts of soda, the sulphate of magnesia, and the chloride of calcium; mix the solutions together, and charge with carbonic acid gas; receive the aërated water into bottles which already contain the sulphate of iron, dissolved in a small quantity of water. This differs essentially from the natural waters of Vichy, in not containing organic matter.—*Paris Codex.*

Eau Artificielle du Mont-dore—*Artificial Mount d'Or Water, P.*—Take of carbonate of soda, in crystals, 144 grains; chloride of calcium, in crystals, 8 grains; chloride of magnesium, in crystals, 1½ grain; chloride of sodium 1 and one third grain; sulphate of iron, in crystals, 2 grains; sulphate of soda, in crystals, 1 and one third grain; water, deprived of air, 20 ounces; carbonic acid gas 5 volumes. Dissolve the carbonate of soda and the sea salt in water, and charge the solution with carbonic acid gas; dissolve separately the chlorides and the sulphate of iron; mix the two solutions; introduce into bottles, fill them up with the saline gaseous solution, and cork quickly.—*Paris Codex.*

Eau de Bourbonne—*Bourbon Water, P.*—Take of bromide of potassium two thirds of a grain; chloride of sodium 54 grains; chloride of calcium, in crystals, 38 grains; sulphate of soda, in crystals, 23 grains; bicarbonate of soda, in crystals, 6 grains; distilled water 20 ounces; carbonic acid gas 5 volumes.—*Paris Codex.*

Eau Magnésienne—*Magnesia Water, P.*—Take of sulphate of magnesia, in crystals, 28 parts; carbonate of soda, in crystals, 36 parts; distilled water 625 parts; carbonic acid gas 6 volumes. Dissolve the two salts separately in water; mix the solutions, and boil them until no more gas is disengaged. Let it deposit; wash the precipitate well; drain; dilute it with the proper quantities of water, and charge with carbonic acid gas; agitate it frequently for twenty-four hours, to facilitate the solution of the magnesia, and bottle. Each bottle of water contains 144 grains of bicarbonate of magnesia, with a little carbonic acid.—*Paris Codex.*

Eau Magnésienne Gazeuse—*Aërated Magnesia Water, P.*—Take of sulphate of magnesia, in crystals, 14 parts; carbonate of soda, in crystals, 18 parts; distilled water 625 parts; carbonic acid gas 6 volumns. To be prepared in the same way as the simple magnesia water. Each bottle of 20 ounces contains 72 grains of bicarbonate of magnesia and an excess of carbonic acid.—*Paris Codex.*

Eau de Sedlitz Artificielle—*Artificial Sedlitz Water, P.*—Take of sulphate of magnesia, in crystals, 144 grains; distilled water 20 ounces; carbonic acid gas 3 volumes. Dissolve the sulphate of magnesia in the water, charge with gas, and bottle.—*Paris Codex.*

Eau de Spa Artificielle—*Artificial Spa Water, P.*—Take of carbonate of soda, in crystals, 3 grains; carbonate of lime three fifths of a grain; carbonate of magnesia a fourth of a grain; protochloride of iron two thirds of a grain; sulphate of alumina, in crystals, a seventh of a grain; water, deprived of air, 20 ounces; carbonic acid gas 5 volumes. Dissolve the carbonate of soda in a small quantity of water, and add the lime and magnesia; dissolve also in a separate portion of the water the alum and the protochloride of iron; mix the two solutions, charge with the gas, and bottle.—*Paris Codex.*

Eau Sulfurée—*Sulphureous Water, P.*—Take of sulphuret of sodium 2½ grains; carbonate of soda, in crystals, 2½ grains; chloride of sodium 2½ grains; water, deprived of air, 20 ounces. Dissolve, and preserve in well-closed bottles. This water is a substitute for the mineral waters charged with sulphuret of sodium, and the sulphureous waters of the Pyrenées, of which it is a bad imitation.—*Paris Codex.*

Solution pour Bains de Barages Artificielle—*Artificial Barége Water for Bathing, P.*—Take of sulphuret of sodium 2 ounces; carbonate of soda, in crystals, 2 ounces; chloride of sodium 2 ounces; water 10 ounces. Dissolve the salts in the water, and bottle quickly and carefully; mix it with the water of the bath at the moment of entering. This formula produces a bath, without colour and with a faint odour of sulphuretted hydrogen, and quite different from the ordinary sulphureous bath prepared with sulphuret of potash.—*Paris Codex.*

Medicated Beers

are medicines prepared by dissolving in beer various remedial agents. They should only be prepared when required, as they will not keep any time.

Biére Antiscorbutique—*Antiscorbutic Beer, P.*—Take of fresh leaves of scurvy-grass 1 ounce; horseradish root, sliced, 2 ounces; buds of the silver fir 1 ounce; fresh beer 4 pounds. Introduce the whole into a matras; macerate for four days; press off, and filter for use.—*Paris Codex.*

Broths.

Bouillon de Veau—*Veal Broth, P.*—Take of veal 4 ounces; water a pound. Digest for two hours in a covered vessel with a gentle heat; strain when cold.—*Paris Codex.*

After this manner prepare chicken, crayfish, turtle, and frog broth.

Bouillon de Limaçon—*Snail Broth, P.*—Take of the flesh of garden snails 4 ounces; water 2 pounds; maidenhair 144 grains. Deprive the snails of their shells, separate their intestines, bruise gently, and wash the flesh in a little tepid water. Weigh it, cut into little pieces, and boil for two hours in a water-bath, with the proportion of water prescribed; add the maidenhair, infuse for a quarter of an hour, and strain.—*Paris Codex.*

Cataplasms.

Cataplasma Aluminis—*Alum Cataplasm, D.*—Take the white of 2 eggs; alum a drachm. Agitate them together until a coagulum is formed.—*Dublin.*

"The best method of forming this coagulum is to put a lump of alum into the albumen, and beat the whole with a spatula until the coagulum forms, which must then be separated from the alum."

Cataplasma Carbonis Ligni—*Cataplasm of Charcoal, D.*—Take of charcoal, which has been recently made red hot, and extinguished by pouring sand over it, and triturated into a very fine powder, a sufficient quantity, and add it to the simple cataplasm made warm.—*Dublin.*

"Recently prepared charcoal has the property of destroying fœtid odours, but it loses much of this if it be allowed to cool in the open air."

Cataplasma Conii—*Cataplasm of Hemlock, L.*—Take of extract of hemlock 2 ounces; water a pint. Mix, and add linseed, bruised, as much as may be sufficient to make it of a proper consistence.—*London.*

Cataplasma Conii—*Cataplasm of Hemlock, D.*—Take of dried hemlock 2 ounces; water a pint. Mix, and add as much linseed, bruised, as is required to make it of a proper consistence.—*Dublin.*

Cataplasme Calmant—*Anodyne Cataplasm, P.*—Take of poppy-heads 1 ounce; hyoscyamus leaves, dried, 2 ounces; emollient flour 4 ounces. Bruise the poppyheads and hyoscyamus leaves, and boil for a few minutes in a pound and a half of water; strain off the liquor, add the powder, and evaporate to the proper consistence.—*Paris Codex.*

Cataplasma Dauci—*Cataplasm of Carrot, D.*—Take of the root of cultivated carrot any quantity; boil the root in water until it be soft enough to make a poultice.—*Dublin.*

Cataplasme Emollient—*Emollient Cataplasm, P.*—Take of

emollient flour 4 ounces; cold water Q.S.. Mix, and boil to a proper consistence, stirring the whole time.—*Paris Codex.*

CATAPLASMA FERMENTI—*Cataplasm of Yeast, L. and D.*—Take of flour a pound; yeast of beer half a pint. Mix, and apply a gentle heat until they begin to swell.—*London and Dublin.*

"The rising is produced by the extrication of carbonic acid gas, on which the efficacy of the cataplasm depends; and which is evolved by the heat applied to the mixture exciting the fermentative process. In this state it is applied."

CATAPLASME DE FÉCULE—*Cataplasm of Starch, P.*—Take of potato starch 2 ounces; water a pound. Place the water on the fire in a covered saucepan, and, when it begins to boil, add the starch, previously mixed with 2 or 3 ounces of cold water; boil for a few seconds. —*Paris Codex.*

CATAPLASMA LINI—*Cataplasm of Linseed, L.*—Take of water, boiling, a pint; linseed, powdered, as much as may be sufficient to make it of a proper consistence; mix.—*London.*

CATAPLASME MATURATIF—*Maturing Cataplasm, P.*—Take of resolvent flour 4 ounces; decoction of marshmallow Q.S.; cerate of resin 1 ounce. Boil the flour and the decoction, stirring continually, to a proper consistence; and, while hot, add the cerate, already melted with a little oil.—*Paris Codex.*

CATAPLASMA SIMPLEX—*Simple Cataplasm, D.*—Take of the powder for a cataplasm any quantity; boiling water enough to make a warm poultice, the surface of which should be covered with olive oil.—*Dublin.*

CATAPLASMA SINAPIS—*Cataplasm of Mustard, L. and D.*—Take of linseed, mustard seed, each, powdered, half a pound; vinegar, boiling, as much as may be sufficient to make them of the proper consistence of a cataplasm.—*London and Dublin.*

CATAPLASME DE MOUTARDE—*Cataplasm of Mustard, P.*—Take of mustard flour 8 ounces; warm water Q.S.; make a cataplasm of the proper consistence. It is important that this preparation be made with warm water instead of vinegar; as it is found that hot water and acids prevent the proper development of the acrid principle of mustard.—*Paris Codex.*

CERATES.

CERATUM—*Cerate, L.*—Take of olive oil 4 fluid ounces; white wax 4 ounces; add the oil to the melted wax, and mix.—*London.*

CERATUM CALAMINÆ—*Cerate of Calamine, L.*—Take of calamine, wax, of each half a pound; olive oil 16 fluid ounces. Mix the oil with the melted wax; then remove them from the fire, and, when first they begin to thicken, add the calamine, and stir constantly until they begin to cool.—*London.*

CERATUM CALAMINÆ—*Cerate of Calamine, E. and D.*—Take of calamine, prepared in the same manner as prepared chalk, 1 part; simple cerate 5 parts. Mix them well together.—*Edinburgh and Dublin.*

CERATUM CANTHARIDIS—*Cerate of Cantharides, L.*—Take of cantharides, rubbed to a very fine powder, an ounce; cerate of spermaceti 6 ounces. Add the cantharides to the cerate, softened by heat, and mix.—*London.*

CERATUM CANTHARIDIS—*Cerate of Spanish Flies, U.S.*—Take of Spanish flies, in very fine powder, a pound; yellow wax, resin, lard, each 8 ounces. To the wax, resin, and lard, previously melted together, add the Spanish flies, and stir the mixture constantly until cool.—*United States.*

CERATUM CETACEI—*Spermaceti Cerate, L.*—Take of spermaceti 2 ounces; white wax 8 ounces; olive oil a pint. To the spermaceti and wax, melted together, add the oil, and stir them with a spatula until they cool.—*London.*

CERATUM SIMPLEX—*Simple Cerate, E.*—Take of olive oil 6 parts; white wax 3 parts; spermaceti 1 part. Heat the oil gently, add the wax and spermaceti, stir the whole briskly when it is fluid, and continue the agitation as it cools.—*Edinburgh.*

CERATUM CETACEI—*Spermaceti Cerate, U.S.*—Take of spermaceti an ounce; white wax 3 ounces; olive oil 6 fluid ounces. Proceed as above.—*United States.*

CÉRAT SIMPLE—*Simple Cerate, P.*—Take of almond oil 12 ounces; white wax 4 ounces. Melt the wax in the oil, by heat, in a water-bath, and triturate in a marble mortar, made hot, until it is cold.—*Paris Codex.*

CÉRAT DE GALIEN—*Cerate of Galen, P.*—Take of almond oil 16 ounces; white wax 4 ounces; rose water 12 ounces. Melt the wax in the oil; cool in a marble mortar, made warm, stirring continually, until it is very nearly cold; then add the rose water, and incorporate well by briskly beating the cerate until it is quite cold.—*Paris Codex.*

CERATUM HYDRARGYRI COMPOSITUM—*Compound Cerate of Mercury, L.*—Take of the stronger ointment of mercury, cerate of soap, each, 4 ounces; camphor an ounce. Rub them together until they are incorporated.—*London.*

CERATUM PLUMBI ACETATIS—*Cerate of Acetate of Lead, L.*—Take of acetate of lead, powdered, 2 drachms; white wax 2 ounces; olive oil 8 fluid ounces. Dissolve the wax in 7 fluid ounces of the oil; then to these gradually add the acetate of lead, separately rubbed, with the rest of the oil, and stir with a spatula until they incorporate.—*London.*

CERATUM PLUMBI COMPOSITUM—*Compound Cerate of Lead, L.*—Take of solution of diacetate of lead 3 fluid ounces; wax 4 ounces; olive oil half a pint; camphor half a drachm. Mix the melted wax with 8 fluid ounces of the oil; then remove them from the fire, and, when first they begin to thicken, gradually add the solution of diacetate of lead, and stir them constantly with a spatula until they cool; lastly, with these mix the camphor dissolved in the rest of the oil.—*London.*

CERATUM PLUMBI SUBACETATIS—*Cerate of Subacetate of Lead, U.S.*—Take of solution of subacetate of lead 2½ fluid ounces; white wax 4 ounces; olive oil 9 fluid ounces; camphor half a drachm. Mix the wax, previously melted, with 8 fluid ounces of the oil; then remove the mixture from the fire, and, when it begins to thicken, gradually pour in the solution of subacetate of lead, constantly stirring with a wooden spatula until it becomes cool; lastly, add the camphor, dissolved in the remainder of the oil, and mix.—*United States.*

CÉRAT DE SATURNE—*Cerate of Subacetate of Lead, P.*—Take of cerate of galen 1 ounce; solution of subacetate of lead 1 drachm. Mix. —*Paris Codex.*

CERATUM RESINÆ—*Cerate of Resin, L.*—Take of resin, wax, each a pound: olive oil 16 fluid ounces. Melt the resin and wax together with a slow fire; then add the oil, and press the cerate, while hot, through a linen cloth.—*London.*

CERATUM RESINÆ—*Resin Cerate, U.S.*—Take of resin 5 ounces; lard 8 ounces; yellow wax 2 ounces. Melt them together, strain through linen, and stir them constantly until cool.—*United States.*

CERATUM RESINÆ COMPOSITUM—*Compound Resin Cerate, U.S.*—Take of resin, suet, yellow wax, each a pound; turpentine half a pound; flax-seed oil half a pint. Melt them together, strain through linen, and stir them constantly until cool.—*United States.*

CÉRAT A LA ROSE—*Rose Cerate, P.*—Take of oil of almonds 2 ounces; white wax an ounce; alkanet-root a drachm; otto of rose 6 minims. Melt the wax in the oil, and digest in it the alkanet-root until it is sufficiently red; express, and let it cool slowly; separate the deposit; liquify afresh, and, when it has become nearly cold, add the otto of rose.—*Paris Codex.*

CERATUM SABINÆ—*Cerate of Savine, L.*—Take of savine, bruised, a pound; wax half a pound; lard 2 pounds. Mix the savine with the lard and wax, melted together, then press through a linen cloth.—*London.*

CERATUM SABINÆ—*Cerate of Savine, E.*—Take of fresh savine 2 parts; beeswax 1 part; axunge 4 parts. Melt the wax and axunge together, add the savin, and boil them together till the leaves are friable, then strain.—*Edinburgh.*

CERATUM SABINÆ—*Savine Cerate, U.S.*—Take of savine, in powder, 2 ounces; resin cerate a pound. Mix the savine with the cerate previously softened.—*United States.*

The preparation of this cerate is rather difficult; it should not be boiled for more than ten minutes; if it be continued longer a great portion of the oil is dissipated, and the preparation thereby rendered inefficacious; a deep green colour is only obtained, however, by continued boiling, and the idea that the virtues of the cerate are proportionate to the tint of green has no doubt caused the present method of preparing it to be adopted. The cerate when good has a *pale green* colour, and the odour of the fresh bruised herb. It should be kept in closely covered pots, as it becomes bad and almost white by exposure to the air.

CERATUM SAPONIS—*Cerate of Soap, L.*—Take of soap 10 ounces; wax 12½ ounces; oxide of lead, powdered, 15 ounces; olive oil a pint, vinegar a gallon. Boil the vinegar with the oxide of lead over a slow fire, constantly stirring them until they incorporate; then add the soap, and boil again in like manner until all the moisture is evaporated; lastly, with these, mix the wax, first dissolved in the oil.—*London.*

CERATUM SAPONIS—*Soap Cerate, U.S.*—Take of solution of subacetate of lead 2 pints; soap 6 ounces; white wax 10 ounces; olive oil a pint. Boil the solution of subacetate of lead with the soap, over a slow fire, to the consistence of honey; then transfer to a water-bath, and evaporate until all the moisture is dissipated; lastly, add the wax, previously melted with the oil, and mix.—*United States.*

CÉRAT SOUFRÉ—*Sulphur Cerate, P.*—Take of sulphur, sublimed and washed, 1 ounce; cerate of galen 3½ ounces; oil of almonds half an ounce. Mix in a mortar.—*Paris Codex.*

CERATUM ZINCI CARBONATIS—*Cerate of Carbonate of Zinc, U.S.* —Take of prepared carbonate of zinc, yellow wax, each, half a pound; lard 2 pounds. Melt the wax and lard together, and, when on cooling

they begin to thicken, add the carbonate of zinc, and stir the mixture constantly until cool.

CONFECTIONS.

CONFECTIO AMYGDALÆ—*Confection of Almond, L. and D.*—Take of sweet almonds 8 ounces; acacia, powdered, an ounce; sugar 4 ounces. The almonds being first macerated in cold water, and their skins removed, pound all the ingredients together until incorporated. This confection may be kept longer unchanged if the almonds, acacia, and sugar, separately powdered, are afterwards mixed. Then, whenever the confection is to be used, pound all the ingredients together until incorporated.—*London and Dublin.*

CONSERVA AMYGDALARUM—*Conserve of Almonds, E.*—Take of sweet almonds 8 ounces; powder of gum arabic 1 ounce; white sugar 4 ounces. Blanch the almonds by maceration and peeling, and beat them with the gum and sugar into a uniform pulpy mass.—*Edinburgh.*

CONFECTIO AROMATICA—*Aromatic Confection, L.*—Take of cinnamon, nutmegs, each, 2 ounces; cloves an ounce; cardamoms (husked) half an ounce; saffron 2 ounces; prepared chalk 16 ounces; sugar 2 pounds. Rub the dry ingredients together to a very fine powder, and keep them in a close vessel. And, whenever the confection is to be used, add water gradually, and mix until incorporated.—*London.*

ELECTUARIUM AROMATICUM—*Aromatic Electuary, E.*—Take of aromatic powder 1 part; syrup of orange-peel 2 parts. Mix, and triturate them into a uniform pulp.—*Edinburgh.*

CONFECTIO AROMATICA—*Aromatic Confection, D.*—Take of cinnamon, nutmegs, each, 2 ounces; cloves 1 ounce; cardamom seeds half an ounce; saffron 2 ounces; prepared chalk 16 ounces; pure sugar 2 pounds. Rub the dry ingredients together to a very fine powder, add 1 pound of water by degrees, and beat into a pulp.—*Dublin.*

CONFECTIO AROMATICA—*Aromatic Confection, U.S.*—Take of aromatic powder 5½ ounces; saffron, in powder, half an ounce; syrup of orange-peel 6 ounces; clarified honey 2 ounces. Rub the aromatic powder with the saffron; then add the syrup and honey; beat them together until thoroughly mixed.—*United States.*

CONFECTIO AURANTII—*Confection of Orange Peel, L.*—Take of orange peel, fresh, separated by a rasp, a pound; sugar 3 pounds. Pound the peel in a stone mortar with a wooden pestle; then, the sugar being added, again pound until incorporated.—*London.*

CONSERVA AURANTII—*Confection of Orange Peel, E.*—Grate off the outer rind of bitter oranges, and beat it into a pulp, adding gradually thrice its weight of white sugar.—*Edinburgh.*

CONFECTIO AURANTII CORTICIS—*Confection of Orange Peel, U.S.*—Take of fresh orange peel, separated from the fruit by grating, a pound; sugar 3 pounds. Beat the orange peel with the sugar, gradually added, till they are thoroughly mixed.—*United States.*

CONSERVE DE COCHLÉARIA—*Confection of Scurvy-grass, P.*—Take of leaves of scurvy-grass, washed, 2 ounces; white sugar 6 ounces. Beat the leaves and sugar in a mortar, reduce them to a homogeneous pulp, and pass through a horsehair sieve.—*Paris Codex.*

In this way is prepared the confection of every fresh herb.

CONFECTIO CASSIÆ—*Confection of Cassia, L.*—Take of cassia (pulp) half a pound; manna 2 ounces; tamarind (pulp) an ounce; syrup of rose 8 fluid ounces. Bruise the manna, then dissolve it in the syrup, afterwards mix in the cassia and tamarind (pulps), and evaporate the moisture until a proper consistence is obtained.—*London.*

ELECTUARIUM CASSIÆ—*Electuary of Cassia, D.*—Take of freshly extracted cassia pulp half a pound; manna 2 ounces; tamarind pulp half an ounce.—*Dublin.*

CONSERVE DE CASSE—*Confection of Cassia, P.*—Take of cassia pulp 1 pound; syrup of violets 12 ounces; white sugar 3 ounces; oil of neroli 5 drops. Mix the sugar, syrup of violets, and cassia pulp together, and boil in the water-bath to the consistence of a soft extract, then add the oil of neroli.—*Paris Codex.*

ELECTUARIUM CATECHU—*Electuary of Catechu, E.*—Take of catechu and kino, of each, 4 ounces; cinnamon and nutmeg, of each, 1 ounce; opium, diffused in a little sherry, one drachm and a half; syrup of red roses, reduced to the consistence of honey, one pint and a half. Pulverize the solids; mix the opium and syrup, then the powders, and beat them thoroughly into a uniform mass.—*Edinburgh.*

ELECTUARIUM CATECHU COMPOSITUM—*Compound Electuary of Catechu, D.*—Take of catechu 4 ounces; cinnamon bark 2 ounces; kino 3 ounces; rub them to powder, and add of hard refined opium, diffused in Spanish white wine, a drachm and a half; syrup of ginger, boiled to the consistence of honey, 2½ pounds. Mix them.—*Dublin.*

Ten scruples should contain one grain of opium, but this is rendered nearly inert by the tannin of the catechu.

CONFECTIO OPII—*Confection of Opium, L. and D.*—Take of hard opium, powdered, 6 drachms; long pepper an ounce; ginger 2 ounces; caraway 3 ounces; tragacanth, powdered, 2 drachms; syrup 16 fluid ounces. Rub the dry ingredients together to a very fine powder, and keep them in a covered vessel; and, whenever the confection is to be used, add 16 fluid ounces of syrup made hot, and mix.—*London and Dublin.*

Supposing the syrup to weigh twenty ounces, thirty-six grains of this confection will contain one grain of opium.

ELECTUARIUM OPII—*Electuary of Opium, E.*—Take of aromatic powder 6 ounces; senega, in fine powder, 3 ounces; opium, diffused in a little sherry, half an ounce; syrup of ginger a pound. Mix them together, and beat them into an electuary.—*Edinburgh.*

One grain of opium is contained in forty-three grains of this preparation.

CONFECTIO OPII—*Confection of Opium, U.S.*—Take of opium, in powder, 4½ drachms; aromatic powder 6 ounces; clarified honey 14 ounces. Rub the opium with the aromatic powder; then add the honey, and beat them together until thoroughly mixed.—*United States.*

CONFECTIO PIPERIS NIGRI—*Confection of Black Pepper, L. and D.*—Take black pepper, elecampane root, each, a pound; fennel seeds 3 pounds; honey (despumated), sugar, each, 2 pounds. Rub the dry ingredients together to a very fine powder, and keep them in a covered vessel; and whenever the confection is to be used, the honey being added, pound them until incorporated.—*London and Dublin.*

ELECTUARIUM PIPERIS—*Electuary of Pepper, E.*—Take black pepper and liquorice-root in powder, of each, a pound; fennel 3 pounds; honey and white sugar, of each, 2 pounds. Triturate the solids together into a very fine powder; add the honey; and beat the whole into a very uniform mass.—*Edinburgh.*

CONFECTIO ROSÆ CANINÆ—*Confection of Dog Rose (Hips), L.*—Take of dog rose (pulp) a pound; sugar, powdered, 20 ounces. Expose the pulp of the rose, in an earthen vessel, to a gentle heat, then add the sugar gradually, and rub together until incorporated.—*London.*

CONSERVA ROSÆ FRUCTUS—*Confection of Dog Rose, E.*—Take any quantity of hips, carefully deprived of their carpels; beat them to a fine pulp, adding gradually thrice their weight of white sugar.—*Edinburgh.*

CONSERVE DE CYNORRHODONS—*Confection of Hips, P.*—Take of dog rose pulp 2 pounds; powdered white sugar 3 pounds. Mix the sugar with the pulp, and heat during a few minutes in a water-bath.—*Paris Codex.*

CONFECTIO ROSÆ GALLICÆ—*Confection of Red Rose, L.*—Take of red rose (petals) a pound; sugar 3 pounds. Pound the rose petals in a stone mortar; then, the sugar being added, pound them again until incorporated.—*London.*

CONSERVA ROSÆ—*Confection of Roses, E.*—Beat the petals of the rosa gallica to a pulp, gradually adding twice their weight of white sugar.—*Edinburgh.*

CONSERVA ROSÆ—*Confection of Roses, D.*—Beat the unblown petals of the red rose, freed from their claws; adding gradually three times their weight of refined sugar.—*Dublin.*

CONFECTIO ROSÆ—*Confection of Roses, U.S.*—Take of red roses, in powder, 4 ounces; sugar, in powder, 30 ounces; clarified honey 6 ounces; rose water 8 fluid ounces. Rub the roses with the rose water at a boiling heat; then add, gradually, the sugar and honey, and beat them together until thoroughly mixed.—*United States.*

CONSERVE DE ROSES—*Conserve of Roses, P.*—Take of red roses, in powder, 2 ounces; rose water 4 ounces; powdered sugar a pound. Macerate the rose leaves in the rose water for two hours, then add the sugar, and thoroughly mix.—*Paris Codex.*

In the same way is prepared the conserve of elecampane.

CONFECTIO RUTÆ—*Confection of Rue, L. and D.*—Take of rue, dried, caraway, bayberries, each an ounce and a half; sagapœnum half an ounce, black pepper 2 drachms; honey (despumated) 16 ounces. Rub the dry ingredients to very fine powder, and preserve them. Then, whenever the confection is to be used, add the honey, and mix them all.—*London and Dublin.*

CONFECTIO SCAMMONII—*Confection of Scammony, L.*—Take of scammony, powdered, an ounce and a half; cloves, bruised, ginger, powdered, each 6 drachms; oil of caraway half a fluidrachm; syrup of rose as much as may be sufficient. Rub the dry ingredients together to very fine powder, and preserve them; then, whenever the confection is to be used, the syrup being gradually poured in, rub again; lastly, the oil of caraway being added, mix them all.—*London.*

ELECTUARIUM SCAMMONII—*Electuary of Scammony, D.*—Take of scammony, in powder, one ounce and a half; cloves, bruised, ginger-root, in powder, of each, 6 drachms; oil of caraway half a drachm; syrup of roses a sufficient quantity. Mix the powders with the syrup; then add the oil of caraway, and mix the whole.—*Dublin.*

CONFECTIO SENNÆ—*Confection of Senna, L.*—Take of senna 8 ounces; figs a pound; tamarind (pulp), cassia (pulp), prunes (pulp), each half a pound; coriander 4 ounces; liquorice 3 ounces; sugar 2½ pounds; water 3 pints. Rub the senna with the coriander, and, by a sieve, separate 10 ounces of the mixed powder. Then boil down the

water, with the figs and liquorice added, to one half; afterwards press out the liquor and strain it. Evaporate the strained liquor in a water-bath, until, of the whole, 24 fluid ounces remain; then, the sugar being added, let a syrup be made. Lastly, rub the pulps gradually with the syrup, and, the sifted powder being thrown in, mix them all.—*London.*

Electuarium Sennæ—*Electuary of Senna, E.*—Take of senna 8 ounces; coriander 4 ounces; liquorice-root, bruised, 3 ounces; figs a pound; pulp of prunes a pound; white sugar 2½ pounds; water 3¼ pints. Powder the senna and coriander; sift out 10 ounces of the mixture; boil the residue with the figs and liquorice in the water down to one half; express and strain the liquor, and evaporate to 24 fluid ounces; dissolve in this, the sugar, and add the liquid by degrees to the pulp of prunes; mix gradually the powder, and triturate the whole carefully to a uniform pulp.—*Edinburgh.*

Electuarium Sennæ—*Electuary of Senna, D.*—Take of senna leaves, in very fine powder, 4 ounces; pulp of prunes a pound; pulp of tamarinds 2 ounces; molasses one pint and a half; essential oil of caraway 2 drachms. Boil the pulps with the syrup to the thickness of honey; then add the powder, and, when the mixture is nearly cold, the oil; finally, mix the whole thoroughly together.—*Dublin.*

Confectio Sennæ—*Confection of Senna, U.S.*—Take of senna 8 ounces; coriander 4 ounces; liquorice-root, bruised, 3 ounces; figs a pound; pulp of prunes, pulp of tamarinds, pulp of purging cassia, of each half a pound; sugar 2½ pounds; water 4 pints. Rub the senna and coriander together, and separate 10 ounces of the powder with a sieve. Boil the residue with the figs and liquorice-root in the water to one half; then press out the liquor, and strain. Evaporate the strained liquor by means of a water-bath, to a pint and a half; then add the sugar and form a syrup. Lastly, rub the pulps with the syrup gradually added, and, having thrown in the sifted powder, beat all together until thoroughly mixed.—*United States.*

Confection of senna when prepared according to the directions of the various Pharmacopœias is a pleasant and very palatable preparation; the commercial article, or "conf. sennæ opt.," is a very different thing, and is generally made from damaged prunes, apples, brown sugar, East India senna, and common tamarinds, and is altogether an improper article for sale; however, a cheap preparation is required, and it is as like the conf. sennæ P.L. as can be made for the money.

Conserve de Tamarins—*Confection of Tamarinds, P.*—Take of tamarind pulp 4 ounces; powdered sugar 6 ounces. Boil together in a water-bath until it is the consistence of thick honey.—*Paris Codex.*

Chocolate.

Chocolat—*Chocolate, P.*—Take of the theobroma cocao 12 pounds; sugar, in coarse powder, 10 pounds; cinnamon, powdered, 1 ounce. Separate by hand all the foreign matters from the cocao, and torrify slowly with a gentle heat, until the envelopes are easily detached; bruise and winnow; separate carefully the buds and improper parts; torrify again for a short time, and reduce to coarse powder by means of a mill. Beat the powdered cocao in an iron mortar, made hot, until it is a soft paste; then add a fourth part of the sugar, and beat into a uniform mass; grind on a hot stone, in small portions at a time, and beat again in the hot mortar with the rest of the sugar and the cinnamon powder; grind again on the stone; divide the mass into portions of a quarter or half a pound each, and put in tin moulds. Place in an oven for a few minutes to liquify the paste, and, when the surface has become united, allow it to cool; detach from the moulds, and wrap each piece in tinfoil.—*Paris Codex.*

Chocolat a la Vanille—*Vanilla Chocolate, P.*—This is prepared the same way as the above, adding, for each 500 parts of the paste, 2 parts of vanilla, powdered and mixed with a small portion of sugar, kept back on purpose.—*Paris Codex.*

Chocolat au Lichen d'Islande—*Iceland Moss Chocolate, P.*—Take of cocao 4 pounds; powdered sugar 3 pounds 10 ounces; dried jelly of Iceland moss 1 pound 6 ounces. Prepared in the same way as simple chocolate, mixing the Iceland moss jelly with the paste at the same time as the sugar.—*Paris Codex.*

Chocolat au Salep—*Salep Chocolate, P.*—Take of plain chocolate 1 pound; salep, in powder, half an ounce. Incorporate well the salep with the chocolate in a heated mortar, and put into moulds in the usual way.—*Paris Codex.*

Collyriums.

Collyre Opiacé—*Opium Collyrium, P.*—Take of rose-water 4 ounces; extract of opium 4 grains. Dissolve.—*Paris Codex.*

Collyre avec le Sulfate de Zinc—*Sulphate of Zinc Collyrium, P.*—Take of sulphate of zinc 18 grains; rose-water 4 ounces. Dissolve and filter.—*Paris Codex.*

Collyre dit Pierre Divin—*Divine Stone Collyrium, P.*—Take of crystallized sulphate of copper 3 ounces; nitrate of potash 3 ounces; alum 3 ounces; camphor 72 grains. Reduce the three salts to powder, and fuse over a fire; then add the camphor, also powdered, and cool by pouring on an oiled stone; preserve in well-stopped bottles. Of this preparation take 72 grains; water 2 pounds. Dissolve and filter.—*Paris Codex.*

Collyre Ammoniacal—*Ammoniacal Collyrium, P.*—Take of slaked lime an ounce; hydrochlorate of ammonia, in powder, 72 grains; vegetable charcoal 18 grains; powdered cinnamon 18 grains; powdered cloves 18 grains; powdered bole armenian 36 grains. Mix the greater part of the lime with the charcoal, and put into a stopped bottle, with intermediate layers of the ammonia; cover with the aromatics, and put in, last of all, the rest of the lime, mixed with the bole armenian. Moisten with a few drops of water, and close tightly.—*Paris Codex.*

Decoctions.

The effect of boiling differs greatly from that of infusion. In the heat of boiling water the essential oils of vegetables, in which their virtue frequently resides, are dissipated; and, when we wish to retain these more volatile parts, infusion is decidedly preferable. Other substances sparingly dissolved by simple infusion yield their virtues readily to the process of coction. In compound decoctions those ingredients should be boiled first which least readily impart their active principles, and those which more readily impart them may be added afterwards. They should always be strained hot, and the purest water should be employed. As they deposit in cooling much of the principles they may have dissolved while hot, clear decoctions are not always the most eligible, although most pleasing to the eye.—Dr. Collier.

Decoctum Aloes Compositum—*Compound Decoction of Aloes, L. and D.*—Take of extract of liquorice 7 drachms; carbonate of potassa a drachm; powdered aloes, powdered myrrh, saffron, of each, a drachm and a half; compound tincture of cardamom 7 fluid ounces; distilled water a pint and a half. Boil down the liquorice, carbonate of potassa, aloes, myrrh, and saffron, with the water, to a pint, and strain; then add the compound tincture of cardamom.—*London and Dublin.*

Decoctum Aloes—*Decoction of Aloes, E.*—Take of socotrine or hepatic aloes, powder of myrrh, and saffron, of each, 1 drachm; extract of liquorice half an ounce; carbonate of potash 2 scruples; compound tincture of cardamom 4 fluid ounces; water 16 fluid ounces. Mix the aloes, myrrh, saffron, liquorice, and carbonate of potash, with the water; boil down to twelve ounces; filter, and add the compound tincture of cardamom.—*Edinburgh.*

By the addition of the alkali in this preparation the water is enabled to hold in solution a greater portion of the aloes than it otherwise could, while another portion is suspended by the mucilage of the liquorice and the myrrh. The tinct. prevents any spontaneous decomposition from taking place for some time; the preparation, however, is not perfect; it will change in character, and become foul and useless when kept for a length of time, and, therefore, a small quantity should only be prepared. There is a concentrated compound decoction of aloes sold by the wholesale houses, made by multiplying the college quantities, and adding so much spirit (in fact, making a spirituous essence) that when diluted it contains the exact quantity of every ingredient ordered to be in the officinal preparation; it is much to be preferred to the usual decoction, as it is certain and unalterable, unchanged by light or heat, and very efficacious.

Decoctum aloes, Co. P. L., is decomposed and precipitated by all the strong acids, bichloride of mercury, tartarized antimony, sulphate of zinc, acetate and diacetate of lead; hence these substances are incompatible in formulæ with this decoction.—Thomson.

Decoctum Altheæ—*Decoction of Marshmallows, D.*—Take of marshmallow root, dried and bruised, 4 ounces; raisins, stoned, 2 ounces; water 7 pounds. Boil down to five pounds; set aside the strained liquor until the dregs have subsided, and then decant it.—*Dublin.*

"Marshmallow-root contains a considerable quantity of mucous, which is thus extracted unaltered by water. The simple decoction of the root is viscid, of a pale yellow colour, sweetish, and has a peculiar odour resembling that of boiled turnips."

Decoctum Amyli—*Decoction of Starch, L.*—Take of starch 4 drachms; water a pint. Rub the starch with the water gradually poured in, then boil a little while.—*London.*

Apozême Antiscorbutique—*Antiscorbutic Decoction, P.*—Take of dried burdock-root 2 parts; dock-root 2 parts; fresh root of horse-raddish 2 parts; fresh leaves of scurvy-grass 2 parts; fresh leaves of cress 2 parts; fresh leaves of marsh trefoil 2 parts; boiling water 250 parts. Infuse for two hours in a covered vessel; express, allow it to deposit, and decant.—*Paris Codex.*

Decoctum Cetrariæ—*Decoction of Liverwort, L.*—Take of liverwort 5 drachms, water a pint and a half. Boil down to a pint, and strain.—*London.*

Decoctum Lichenis Islandici—*Decoction of Iceland Liverwort, D.*—Take of Iceland liverwort half an ounce; boiling water a pint.

Digest for two hours; then boil for a quarter of an hour, and strain the liquor while it is hot.—*Dublin.*

Decoctum Cetrariæ—*Decoction of Iceland Moss, U.S.*—Take of Iceland moss half an ounce; water a pint and a half. Boil down to a pint, and strain, with compression.—*United States.*

In these decoctions the bitter principle of the lichen is united with forty-four per cent. of lichenin, a modification of fecula, with lichenates of potash and lime, phosphate of lime, gum, sugar, and extractive.

Decoctum Chamæmeli Compositum—*Compound Decoction of Chamomile, D.*—Take of chamomile flowers, dried, half an ounce; fennel seeds 2 drachms; water a pint. Boil a little, and strain.—*Dublin.*

This decoction contains in solution bitter extractive, but, owing to the boiling, only a small portion of essential oil.

Decoctum Chimaphilæ—*Decoction of Pyrola or Winter Green, L.*—Take of winter green or pyrola an ounce; distilled water a pint and a half. Boil down to a pint, and strain.—*London.*

Decoctum Pyrolæ—*Decoction of Winter Green or Pyrola, D.*—Take of pyrola umbellata 1 ounce; water 2 pints. Macerate for six hours, then take out the pyrola, and, having bruised it, return it to the liquor. Reduce the mixture by evaporation to one pint, when expressed.—*Dublin.*

Decoctum Chimaphilæ—*Decoction of Pipsissewa, U.S.*—Take of pipsissewa, bruised, an ounce; water a pint and a half. Boil down to a pint, and strain.—*United States.*

Decoctum Cinchonæ Cordifolia—*Decoction of Heart-leaved Cinchona—Yellow Bark, L.*—Take of heart-leaved cinchona, bruised, 10 drachms; distilled water a pint. Boil for ten minutes in a lightly-covered vessel, and strain the liquor while hot.—*London.*

Decoctum Cinchonæ—*Decoction of Bark, E.*—Take of crown, grey, yellow, or red cinchona, 1 ounce, bruised; water 24 fluid ounces. Boil for ten minutes, let the decoction cool, then filter it, and evaporate to sixteen fluid ounces.—*Edinburgh.*

Decoctum Cinchonæ—*Decoction of Peruvian Bark, U.S.*—Take of Peruvian bark, bruised, an ounce; water a pint. Boil for ten minutes in a covered vessel, and strain the liquor while hot.—*United States.*

Decoctum Cinchonæ Lancifoliæ—*Decoction of Lance-leaved Cinchona Bark—Pale Bark, L.*—Take of lance-leaved cinchona, bruised, 10 drachms; distilled water a pint. Boil for ten minutes in a lightly-covered vessel, and strain the liquor while hot.—*London.*

Decoctum Cinchonæ—*Decoction of Cinchona, D.*—Take of lance-leaved cinchona bark, in coarse powder, an ounce; water enough to leave a pint after it is strained.—*Dublin.*

Decoctum Cinchonæ Oblongifoliæ—*Decoction of Oblong-leaved Cinchona—Red Bark, L.*—Take of oblong-leaved cinchona, bruised, 10 drachms; water a pint. Boil for ten minutes in a lightly-covered vessel, and strain the liquor while hot.—*London.*

Cinchona bark is one of those substances which suffers by long coction with water; and, therefore, the colleges have properly limited the time of boiling to ten minutes, and ordered the vessel to be covered, and the liquid to be strained while it is hot. As the strained decoctions cool they become turbid, and let fall a yellowish or reddish powder, according to the kind of bark employed; this, however, must not be rejected, but diffused through the clear decoction when it is about to be used in compounding extemporaneous mixtures, or when the dose is to be taken. When the decoction is made with heart-leaved cinchona it contains kinates of cinchonia, with a small proportion of kinate of quina; both contain tannin and kinate of lime. The decoction of the red bark contains acidulous kinates of quina and of cinchonia, with more tannin than exists in the other two decoctions. By long boiling, says Pelletier, the tannin and starch form a compound insoluble in cold water, and which is, therefore, in conjunction with colouring matter, kinate of lime, &c., precipitated as the decoction cools, and carries down also a portion of the cinchonia and quina; to remedy which, Pelletier recommends a larger proportion of water to be used, and the decoction to be filtered and evaporated. This, however, is a tedious process; and, as sulphates of cinchonia and quina are very soluble, we are of opinion that the addition of one drachm of diluted sulphuric acid to the water for making the decoction will better answer this intention.—Thomson.

Decoctum Carnûs Floridæ—*Decoction of Dogwood, U.S.*—Take of dogwood, bruised, an ounce; water a pint. Boil for ten minutes in a covered vessel, and strain the liquor while hot.—*United States.*

Decoctum Cydoniæ—*Decoction of Quince Seeds, L.*—Take of quince seeds 2 drachms; distilled water a pint. Boil with a slow fire for ten minutes, afterwards strain.—*London.*

The decoction of quince seeds is viscid, and almost colourless; it very quickly spoils, and, therefore, should only be made as required. It is incompatible with alcohol, acids, and most metallic solutions.

Decoctum Dulcamaræ—*Decoction of Woody Nightshade, L. and D.*—Take of woody nightshade, sliced, 10 drachms; distilled water a pint and a half. Boil down to a pint, and strain.—*London and Dublin.*

Decoctum Dulcamaræ—*Decoction of Dulcamara, E.*—Take of dulcamara, chopped down, 1 ounce; water 24 fluid ounces. Mix them, boil, and concentrate by evaporation to 16 fluid ounces.—*Edinburgh.*

Decoctum Dulcamaræ—*Decoction of Bittersweet, U.S.*—Take of bittersweet, bruised, 1 ounce; water a pint and a half. Boil down to a pint, and strain.—*United States.*

This decoction has a strong, unpleasant odour, and a bitter, nauseous taste, followed by a degree of sweetness.

Decoctum Glycyrrhizæ—*Decoction of Liquorice, D.*—Take of bruised liquorice-root one ounce and a half; water a pint. Boil for ten minutes, and strain.—*Dublin.*

Decoctum Granati—*Decoction of Pomegranate, L.*—Take of pomegranate (rind) 2 ounces; distilled water a pint and a half. Boil down to a pint, and strain.—*London.*

Apozême Vermifuge—*Vermifuge Decoction, P.*—Take of dried pomegranate-root bark 2 ounces; water a pound and a half. Boil down to a pint, and strain.—*Paris Codex.*

Decoctum Guaiaci—*Decoction of Guaiacum, E.*—Take of guaiacum turnings 3 ounces; raisins 2 ounces; sassafras, rasped, and liquorice-root, bruised, each, 1 ounce; water 8 pints. Boil the guaiacum and raisins with the water gently down to 5 pints, adding the liquorice and sassafras towards the end; strain the decoction.—*Edinburgh.*

Decoctum Hordei—*Decoction of Barley, L. and D.*—Take of pearl barley 2½ ounces; water 4½ pints. First wash away with water the foreign matters adhering to the barley seeds; afterwards, half a pint of the water being poured upon them, boil the seeds a little while. This water being thrown away, pour on the seeds that which is left, first made hot; then boil down to 2 pints, and strain.—*London and Dublin.*

Decoctum Hordei—*Decoction of Barley, U.S.*—Take of barley 2 ounces; water 4½ pints. Directions the same as the London Pharmacopœia.—*United States.*

Decoctum Hordei Compositum—*Compound Decoction of Barley, L.*—Take of decoction of barley 2 pints; figs, sliced, 2½ ounces; liquorice-root, sliced and bruised, 5 drachms; raisins, stoned, 2½ ounces; water a pint. Boil down to 2 pints and strain.—*London.*

Decoctum Hordei Compositum—*Compound Decoction of Barley, D.*—Take of decoction of barley 4 pints; raisins, stoned, figs, sliced, of each, 2 ounces; liquorice-root, sliced and bruised, half an ounce. During the boiling add first the raisins, then the figs, and, lastly, the liquorice-root just before it is finished. When it is completed, the strained liquor ought to measure 2 pints.—*Dublin.*

Decoctum Hœmatoxyli—*Decoction of Logwood, E.*—Take of logwood, in chips, 1 ounce; water a pint; cinnamon 1 drachm, in powder. Boil the logwood in the water down to 10 fluid ounces; adding the cinnamon towards the end; and then strain.—*Edinburgh.*

Decoctum Hœmatoxyli—*Decoction of Logwood, D.*—Take of rasped logwood one ounce and a half; cinnamon bark, bruised, a drachm; water 2 pints. Boil the wood in the water, and evaporate the solution to a pint; towards the end of the boiling add the cinnamon bark, and strain.—*Dublin.*

Decoctum Hœmatoxyli—*Decoction of Logwood, U.S.*—Take of logwood, rasped, 1 ounce; water 2 pints. Boil down to a pint, and strain.—*United States.*

Decoctum Malvæ Compositum—*Compound Decoction of Mallow, L.*—Take of mallow, dried, 1 ounce; chamomile, dried, half an ounce; water a pint. Boil for a quarter of an hour, and strain.—*London.*

Decoctum Mezerei—*Decoction of Mezereon, E.*—Take of mezereon, in chips, 2 drachms; liquorice-root, bruised, half an ounce; water 2 pints. Mix them, and boil down with a gentle heat to a pint and a half, and then strain.—*Edinburgh.*

Decoctum Papaveris—*Decoction of Poppy, L. and D.*—Take of poppy capsules, sliced, 4 ounces; water 4 pints. Boil for a quarter of an hour, and strain.—*London and Dublin.*

Decoctum Papaveris—*Decoction of Poppy, E.*—Take of poppy-heads, sliced, 4 ounces; water 3 pints. Boil for fifteen minutes, and then strain,—*Edinburgh.*

"In making this decoction the seeds should not be rejected, as they contain a considerable portion of bland oil, which, added to the mucilage and narcotic principle of the capsule, increases the emollient quality of the decoction. Its efficacy is promoted by the addition of six fluid ounces of distilled vinegar to the quantity of decoction ordered."

Apozême du Potion Purgative—*Purgative Decoction, P.*—Take of clean senna leaves 8 parts; sulphate of soda 16 parts; picked rhubarb 4 parts; common manna 64 parts; boiling water 112 parts. Digest the senna and rhubarb in the water for half an hour; press off,

strain; dissolve, then, the sulphate of soda and manna with a gentle heat; let it settle, and decant.—*Paris Codex.*

Decoctum Quercûs—*Decoction of Oak Bark, L. and E.*—Take of oak bark, bruised, 10 drachms; distilled water 2 pints. Boil down to a pint, and strain.—*London and Edinburgh.*

Decoctum Quercûs Albæ—*Decoction of White Oak Bark, U.S.*—Take of white oak bark, bruised, an ounce; water a pint and a half. Boil down to a pint, and strain.—*United States.*

This decoction contains the greater part of the astringent matter of the bark. It is nearly inodorous, has a brown colour, and an austere taste; reddens tincture of litmus, and is incompatible with decoction of cinchona, metallic salts, and solution of isinglass; the alkaline solutions destroy its astringency. It does not precipitate tartar emetic in solution.

Decoctum Sarzæ—*Decoction of Sarsaparilla, L. and D.*—Take of sarsaparilla, sliced, 5 ounces; distilled water, boiling, 4 pints. Macerate for four hours in a lightly-covered vessel, near the fire; then take out, and bruise the sarsaparilla. When bruised, return it to the liquor, and again macerate in like manner for two hours; afterwards boil down to two pints, and strain.—*London and Dublin.*

Decoctum Sarzæ—*Decoction of Sarsaparilla, E.*—Take of sarza, in chips, 5 ounces; boiling water 4 pints. Digest the root in the water for two hours, at a temperature somewhat below ebullition, take out the root, bruise it, replace it, boil down to two pints, then squeeze out the decoction, and strain it.—*Edinburgh.*

Decoctum Sarzæ Compositum—*Compound Decoction of Sarsaparilla, L. and D.*—Take of decoction of sarsaparilla, boiling, 4 pints; sassafras, sliced, guaiacum wood, rasped, liquorice-root, bruised, each, 10 drachms; bark of mezereon-root 3 drachms. Boil for a quarter of an hour, and strain.—*London and Dublin.*

Decoctum Sarzæ Compositum—*Compound Decoction of Sarsaparilla, E.*—Take of decoction of sarza, boiling hot, 4 pints; sassafras, in chips, and bruised, guaiacum turnings, fresh liquorice-root, of each, 10 drachms; mezereon half an ounce. Boil them together for fifteen minutes, and then strain.—*Edinburgh.*

Decoctum Sarsaparillæ Compositum—*Compound Decoction of Sarsaparilla, U.S.*—Take of sarsaparilla, sliced and bruised, 6 ounces; bark of sassafras-root, sliced, guaiacum wood, rasped, liquorice-root, bruised, each, an ounce; mezereon, sliced, 3 drachms; water 4 pints. Boil for a quarter of an hour, and strain.—*United States.*

Apozême Sudorifique—*Sudorific Decoction, P.*—Take of guaiacum, rasped, 64 parts; sarsaparilla-root, sliced, 32 parts; sassafras-root 8 parts; liquorice-root 12 parts. Boil the guaiacum and the sarza in a sufficient quantity of water for an hour; then add the sassafras and liquorice root, and infuse for two hours. Press, allow it to deposit, and decant.—*Paris Codex.*

Concentrated, simple, and compound decoctions of sarsaparilla of various strengths are now always supplied by the wholesale houses, and have quite superseded the college preparations; they are prepared from private receipts more or less similar to the college formulæ, and are, in every way, most perfect and efficient substitutes. Cold water is now frequently used, the root is exhausted in a gigantic percolator, and the liquor evaporated in vacuo. Boiling water abstracts a large quantity of starch, which forms an abundant precipitate on the addition of the proportion of spirit necessary for preserving it; and, when Vera Cruz or Honduras sarza is used, the deposit is immense. This preparation has now become an article of great consumption, and offers many opportunities for adulteration; we have seen some excellent looking and tasting decoction prepared with damaged root, and a vegetable colouring matter.

Decoctum Senegæ—*Decoction of Seneka, L. and D.*—Take of seneka 10 drachms; distilled water 2 pints. Boil down to a pint, and strain.—*London and Dublin.*

Decoctum Senegæ—*Decoction of Seneka, U.S.*—Take of seneka, bruised, an ounce; water a pint and a half. Boil down to a pint, and strain.—*United States.*

This decoction is of a brownish olive colour, inodorous, and has a hot pungent taste. Its virtues are supposed to depend on senegin.

Decoctum Scoparii Compositum—*Compound Decoction of Broom, L.*—Take of fresh broom tops, juniper fruit, dandelion-root, each half an ounce; distilled water a pint and a half. Boil down to a pint, and strain.—*London.*

Decoctum Scoparii—*Decoction of Broom, E.*—Take broom tops and juniper tops, of each, half an ounce; bitartrate of potash 2½ drachms; water a pint and a half. Boil them together down to a pint, and then strain.—*Edinburgh.*

Decoctum Blanche de Sydenham—*White Decoction of Sydenham, P.*—Take of levigated calcined hartshorn 8 parts; crumb of bread 24 parts; bruised gum arabic 8 parts; white sugar 32 parts; orange flower water 16 parts; water Q.S. Triturate the hartshorn in a marble mortar with the bread crumb, until they are thoroughly mixed; add the gum, and nearly a quart, 120 parts, of water, and boil for half an hour in a covered vessel; strain with slight pressure through a fine cloth; dissolve the sugar, and add the orange flower water. This should yield 120 parts of decoction.—*Paris Codex.*

Decoctum Tormentillæ—*Decoction of Tormentilla, L.*—Take of tormentil, bruised, 2 ounces; distilled water a pint and a half. Boil down to a pint, and strain.—*London.*

Decoctum Taraxaci—*Decoction of Dandelion, E.*—Take of taraxacum, herb and root, fresh, 7 ounces; water 2 pints. Boil together down to one pint, and then strain.—*Edinburgh.*

Decoctum Taraxaci—*Decoction of Dandelion, D.*—Take of the fresh herb and root of dandelion 4 ounces; water 2 pounds. Boil to one pound, and strain the expressed fluid.—*Dublin.*

Decoctum Taraxaci—*Decoction of Dandelion, U.S.*—Take of dandelion, bruised, 2 ounces; water 2 pints. Boil down to a pint, and strain.—*United States.*

Decoctum Ulmi—*Decoction of Elm Bark, L. and D.*—Take of elm bark, fresh, bruised, 2½ ounces; distilled water 2 pints. Boil down to a pint, and strain.—*London and Dublin.*

This decoction is thick, slightly mucilaginous, and of a brown colour; has a faint odour and a bitterish taste. Tinctures in any quantity are inadmissible in formula with it.

Decoctum Uvæ Ursi—*Decoction of Whortleberry, L.*—Take of whortleberry leaves, bruised, an ounce; distilled water a pint and a half. Boil down to a pint, and strain.—*London.*

Decoctum Uvæ Ursi—*Decoction of Whortleberry, U.S.*—Take of uva ursi an ounce; water 20 fluid ounces. Boil down to a pint, and strain.—*United States.*

Decoctum Veratri—*Decoction of White Hellebore, L. and D.*—Take of white hellebore-root, bruised, 10 drachms; distilled water 2 pints; rectified spirit 3 fluid ounces. Boil the hellebore in the water down to a pint, and, when it has cooled, add the spirit, then press and strain.—*London and Dublin.*

Plasters.

Emplastrum Ammoniaci—*Plaster of Ammoniacum, L. and D.*—Take of ammoniacum 5 ounces; distilled vinegar 8 fluid ounces. Dissolve the ammoniacum in the vinegar, then evaporate the liquor with a slow fire, constantly stirring to a proper consistence.—*London and Dublin.*

Emplastrum Ammoniaci—*Plaster of Ammoniacum, E.*—Take of ammoniac 5 ounces; distilled vinegar 9 fluid ounces. Dissolve the ammoniac in the vinegar, and then evaporate to a proper consistence over the vapour-bath, frequently stirring the liquid.—*Edinburgh.*

Emplastrum Ammoniaci—*Ammoniac Plaster, U.S.*—Take of ammoniac 5 ounces; vinegar half a pint. Dissolve the ammoniac in the vinegar, and strain; then evaporate the solution by means of a water-bath, stirring constantly, until it acquires a proper consistence.—*United States.*

Emplastrum Ammoniaci cum Hydrargyro.—*Plaster of Ammoniacum with Mercury, L.*—Take of ammoniacum a pound; mercury 3 ounces; olive oil a fluidrachm; sulphur 8 grains. To the heated oil gradually add the sulphur, stirring constantly with a spatula until they incorporate; then rub the mercury with them until globules are no longer visible; lastly, gradually add the ammoniacum, melted, and mix them all.—*London.*

Emplastrum Ammoniaci et Hydrargyri—*Plaster of Ammoniacum and Mercury, E.*—Take of ammoniac 1 pound; mercury 3 ounces; olive oil 1 fluidrachm; sulphur 8 grains. Heat the oil, add the sulphur by degrees, stir them, till they unite; add the mercury, and triturate till the globules disappear; then add also the ammoniac previously liquefied, and mix the whole carefully.—*Edinburgh.*

Emplastrum Ammoniaci cum Hydrargyro—*Plaster of Ammoniacum with Mercury, D.*—Take of pure gum ammoniacum 1 pound; purified mercury 3 ounces; turpentine 2 drachms. Rub the mercury with the turpentine until the globules disappear; then add gradually the ammoniacum, previously melted, and mix the whole together.—*Dublin.*

In these plasters the mercury is probably in a state of oxide.

Emplastrum Asafœtidæ—*Asafœtida Plaster, E.*—Take litharge plaster and asafœtida, of each, 2 ounces; galbanum and beeswax, of each, 1 ounce. Liquefy the gum resins together, and strain them, then add the plaster and wax also in the fluid state, and mix them all thoroughly.—*Edinburgh.*

Emplastrum Asafœtidæ—*Asafœtida Plaster, U.S.*—Take of asafœtida, lead plaster, each, a pound; galbanum, yellow wax, each, half a pound; diluted alcohol 3 pints. Dissolve the asafœtida and galbanum in the alcohol with the aid of a water-bath; strain the liquor while hot, and evaporate to the consistence of honey; then add the lead plaster and wax previously melted together; stir the mixture well, and evaporate to the proper consistence.—*United States.*

EMPLATRE AGGLUTINATIF—*Adhesive Plaster, P.*—Take of Burgundy pitch 8 ounces; elemi 2 ounces; turpentine 1 ounce; oil of bays 1 ounce. Melt altogether over a gentle fire; strain, and cool in a pot.—*Paris Codex.*

EMPLASTRUM AROMATICUM — *Aromatic Plaster, D.* — Take of frankincense 3 ounces; yellow wax half an ounce; cinnamon-bark, in powder, 6 drachms; oil of pimenta, oil of lemons, of each, 2 drachms. Melt the frankincense and the wax together, and strain the mixture; when it thickens, by cooling, mix with it the powder of cinnamon, previously rubbed with the oils, and form them into a plaster.—*Dublin.*

As the oils are very volatile, this must be spread with the thumb without being melted.

EMPLASTRUM BELLADONNÆ—*Plaster of Deadly Nightshade, L. and D.*—Take of plaster of resin 3 ounces; extract of deadly nightshade an ounce and a half. To the plaster, melted with the heat of a water-bath, add the extract, and mix.—*London and Dublin.*

EMPLASTRUM BELLADONNÆ—*Belladonna Plaster, E.*—Take of resin plaster 3 ounces; extract of belladonna one ounce and a half. Liquefy the plaster with a gentle heat, add the extract, and agitate briskly.—*Edinburgh.*

EMPLASTRUM BELLADONNÆ—*Plaster of Belladonna, U.S.*—Take of resin plaster 3 ounces; extract of belladonna one ounce and a half. Add the extract to the plaster, previously melted by the heat of a water-bath, and mix them.—*United States.*

EMPLATRE BRUN—*Brown Plaster, P.*—Take of olive oil 2 pounds; lard 1 pound; butter 1 pound; mutton suet 1 pound; yellow wax 1 pound; litharge, in fine powder, 1 pound; black pitch 4 ounces. Heat the oil, lard, suet, butter, and wax, over a fire, in a large copper vessel, until they begin to smoke; then add by degrees the powdered litharge, and stir continually with a wooden spatula, until the mixture has acquired a dark brown colour; then mix the pitch previously melted and strained.—*Paris Codex.*

EMPLASTRUM CALEFACIENS—*Warm Plaster, D.*—Take of plaster of cantharides 1 part; Burgundy pitch 7 parts. Melt them together with a moderate heat, and mix them so as to form a plaster.—*Dublin.*

EMPLASTRUM CANTHARIDIS—*Plaster of Cantharides, L.*—Take of cantharides, rubbed to very fine powder, a pound; plaster of wax a pound and a half; lard half a pound. Sprinkle the cantharides in the plaster and lard melted together, and removed from the fire a little before they concrete, and mix them all.—*London.*

EMPLASTRUM CANTHARIDIS COMPOSITUM—*Compound Plaster of Cantharides, E.*—Take of Venice turpentine 4½ ounces; Burgundy pitch and cantharides, of each, 3 ounces; beeswax 1 ounce; verdigris half an ounce; white mustard seed and black pepper, of each, 2 drachms. Liquefy the wax and Burgundy pitch; add the turpentine, and, while the mixture is hot, sprinkle into it the remaining articles, previously in very fine powder, and mixed together. Stir the whole briskly, as it concretes in cooling.—*Edinburgh.*

EMPLASTRUM CANTHARIDIS—*Blistering Plaster, D.*—Take purified yellow wax and mutton suet, of each, a pound; yellow resin 4 ounces; blistering flies, in fine powder, a pound. Melt the wax, suet, and resin together, and a little before they concrete, in becoming cold, sprinkle in the blistering flies, and form the whole into a plaster.—*Dublin.*

EMPLATRE DE CANTHARIDES—*Plaster of Cantharides, P.*—Take of yellow resin 4 ounces; lard 4 ounces; yellow wax 4 ounces; cantharides, in very fine powder, 4 ounces. Melt the resin, lard, and yellow wax over a slow fire; strain through a linen cloth, and, while they are still hot, add the cantharides, and stir until cold. In summer it is necessary to replace 1 ounce of lard by 1 ounce of yellow wax.—*Paris Codex.*

This plaster should be prepared with a gentle heat; it is of a moderately soft consistence, so as to admit of being spread without the assistance of heat, which destroys the acrimony and epispastic properties of the flies. More elegant preparations than blistering plaster, and equally, if not more efficacious, are Tela vesicatoria, Charta vesicatoria, &c., so generally employed in the present day for blistering, and are prepared with the oil of cantharides.

EMPLASTRUM CERÆ—*Plaster of Wax, L.*—Take of wax and suet, each, 3 pounds; resin 3 pounds. Melt them together, and strain.—*London.*

EMPLATRE DE CIRE—*Plaster of Wax, P.*—Take of yellow wax 3 pounds; mutton suet 3 pounds; Burgundy pitch 1 pound. Melt them together, and strain.—*Paris Codex.*

EMPLATRE D'ACÉTATE DE CUIVRE—*Plaster of Acetate of Copper, P.*—Take of yellow wax 4 ounces; Burgundy pitch 2 ounces; turpentine 1 ounce; levigated verdigris (subacetate of copper) 1 ounce. Melt with a gentle heat the wax, pitch, turpentine, and strain; then add the verdigris, and stir until nearly cold.—*Paris Codex.*

EMPLATRE DE CIGUË—*Plaster of Hemlock, P.*—Take of yellow resin 15 ounces; Burgundy pitch 7 ounces; yellow wax 10 ounces; oil of hemlock 2 ounces; fresh leaves of hemlock 2 pounds; gum ammoniacum 8 ounces. Melt in a copper vessel, over a gentle fire, the resin, pitch, wax, and oil of hemlock; add the hemlock leaves, well bruised, and boil until all the moisture of the leaves is dissipated; then press strongly, melt again the plaster, and allow it to cool gradually, that the foreign matters may subside and be easily separated.—*Paris Codex.*

EMPLATRE DE CEROENE, *P.*—Take of Burgundy pitch 12 ounces; black pitch 3 ounces; yellow wax 3¾ ounces; mutton suet one ounce and a quarter; prepared Armenian bole 3¼ ounces; powdered myrrh three quarters of an ounce; powdered olibanum three quarters of an ounce; levigated red lead three quarters of an ounce. Melt, first, the pitch, then the Burgundy pitch, wax, and suet, strain through linen, and, when the mass is nearly cold, incorporate the powders.—*Paris Codex.*

EMPLATRE DE CERUSE—*Plaster of White Lead, P.*—Take of pure powdered white lead 1 pound; olive oil 2 pounds; white wax 3 ounces; water 2 pounds. Proceed the same way as in making the simple plaster; and, when it has been well kneaded, melt again with the wax, and roll.—*Paris Codex.*

EMPLATRE DIAPALME—*Plaster of Zinc, P.*—Take of simple plaster 2 pounds; white wax 2 ounces; sulphate of zinc 1 ounce. Melt the simple plaster and wax; add the sulphate of zinc dissolved in a small quantity of water, and heat gently, stirring continually, until all the moisture is dissipated.—*Paris Codex.*

EMPLATRE DIACHYLON GOMMÉ—*Diachylon and Gum Plaster, P.*—Take of simple plaster 3 pounds; yellow wax 3 ounces; Burgundy pitch 3 ounces; turpentine 3 ounces; gum ammoniacum 1 ounce; gum bdellium 1 ounce; gum galbanum 1 ounce; gum sagapœnum 1 ounce. Melt the simple plaster with the wax, and add the turpentine and pitch already melted and strained; add then, and incorporate well by agitation, the gum resins previously dissolved in alcohol of sp. gr. 920°, and brought to the consistence of a thick honey by distillation and evaporation; when the plaster is sufficiently cool, roll into proper pieces.—*Paris Codex.*

EMPLASTRUM FERRI—*Plaster of Iron, D.*—Take of litharge plaster 3 ounces; resin 6 drachms; olive oil 3½ fluidrachms; beeswax 3 drachms; red oxide of iron 1 ounce. Triturate the oxide of iron with the oil, and add the mixture to the other articles, previously liquefied by gentle heat. Mix the whole thoroughly.—*Edinburgh.*

EMPLASTRUM FERRI—*Iron Plaster, U.S.*—Take of subcarbonate of iron 3 ounces; lead plaster 2 pounds; Burgundy pitch half a pound. Add the subcarbonate of iron to the lead plaster and Burgundy pitch, previously melted together, and stir them constantly until they thicken upon cooling.—*United States.*

EMPLATRE DE CANET—*Plaster of Iron, P.*—Take of simple plaster 4 ounces; diachylon and gum plaster 4 ounces; yellow wax 4 ounces; olive oil 4 ounces; colcothar 4 ounces. Grind on a slab the colcothar with a third of the oil; melt the plasters and wax with the rest of the oil; add the colcothar, and stir until it is cold.—*Paris Codex.*

EMPLASTRUM GALBANI—*Plaster of Galbanum, L.*—Take of galbanum 8 ounces; plaster of lead 3 pounds; common turpentine 10 drachms; resin of the spruce fir, powdered, 3 ounces. To the galbanum and turpentine melted together, first add the resin of the spruce fir, then the plaster of lead, melted with a slow fire, and mix them all.—*London.*

EMPLASTRUM GALBANI—*Plaster of Galbanum, D.*—Take of litharge plaster 2 pounds; galbanum half a pound; yellow wax, sliced, 4 ounces. To the galbanum, melted by heat, add the litharge plaster and the wax; then melt the whole together by a gentle heat.—*Dublin.*

EMPLASTRUM GALBANI COMPOSITUM—*Compound Galbanum Plaster, U.S.*—Take of galbanum 8 ounces; lead plaster 3 pounds; turpentine 10 drachms; Burgundy pitch 3 ounces. To the galbanum and turpentine, previously melted together and strained, add, first the Burgundy pitch, and afterwards the lead plaster, melted over a gentle fire, and mix the whole together.—*United States.*

EMPLASTRUM GUMMOSUM—*Gum Plaster, E.*—Take of litharge plaster 4 ounces; ammoniac, galbanum, and beeswax, of each half an ounce. Mix the gum resins together, and strain them; melt also together the plaster and wax; add the former to the latter mixture, and mix the whole thoroughly.—*Edinburgh.*

EMPLASTRUM HYDRARGYRI—*Plaster of Mercury, L.*—Take of mercury 3 ounces; plaster of lead a pound; olive oil a fluidrachm; sulphur 8 grains. To the heated oil add the sulphur gradually, stirring constantly with a spatula until they incorporate; afterwards rub the mercury with them until globules are no longer visible; then gradually add the plaster of lead melted over a slow fire, and mix them all.—*London.*

EMPLASTRUM HYDRARGYRI—*Plaster of Mercury, E.*—Take of mercury 3 ounces; olive oil 9 fluidrachms; resin 1 ounce; litharge

plaster 6 ounces. Liquefy together the oil and resin, let them cool, add the mercury, and triturate till its globules disappear; then add to the mixture the plaster previously liquefied, and mix the whole thoroughly.—*Edinburgh.*

Emplastrum Hydrargyri—*Mercurial Plaster, U.S.*—Take of mercury 6 ounces; olive oil, resin, each 2 ounces; lead plaster a pound. Melt the oil and resin together, and, when they have become cool, rub the mercury with them till the globules disappear; then gradually add the lead plaster previously melted, and mix the whole together.—*United States.*

Emplatre Mercuriel—*Mercurial Plaster, P.*—Take of simple plaster 2 pounds 8 ounces; yellow wax 2 ounces; purified resin 2 ounces; gum ammoniacum three quarters of an ounce; gum bdellium three quarters of an ounce; gum olibanum three quarters of an ounce; gum myrrh three quarters of an ounce; powdered saffron 3 drachms; mercury 12 ounces; turpentine 2 ounces; strained styrax 6 ounces; oil of lavender a quarter of an ounce. Powder the gum resins, and saffron; triturate the mercury with the styrax and turpentine in a mortar until it is entirely killed; melt the simple plaster with the resin, add to them the powders and volatile oil, and, when the mixture has become nearly cold, add the mercury, &c., and thoroughly incorporate.—*Paris Codex.*

Emplatre de Minium Camphré—*Camphorated Plaster of Minium, P.*—Take of simple plaster 12 ounces; yellow wax 6 ounces; olive oil 2 ounces; minium, or red lead, 3 ounces; camphor a quarter of an ounce. Melt together the simple plaster and the wax; grind the red lead with the oil, and mix altogether, adding the camphor, dissolved in a little alcohol, when the mixture is nearly cold.—*Paris Codex.*

Emplastrum Opii—*Plaster of Opium, L.*—Take of hard opium, powdered, half an ounce; resin of the spruce fir, powdered, 3 ounces; plaster of lead a pound; water 8 fluid ounces. To the melted plaster add the resin of the spruce fir, the opium, and the water, and with a slow fire boil down, until all unite into a proper consistence.—*London.*

Emplastrum Opii—*Plaster of Opium, E.*—Take of powder of opium half an ounce; Burgundy pitch 3 ounces; litharge plaster 12 ounces. Liquefy the plaster and the pitch, add the opium by degrees, and mix them thoroughly.—*Edinburgh.*

Emplastrum Opii—*Opium Plaster, U.S.*—Take of opium, in powder, 2 ounces; Burgundy pitch 3 ounces; lead plaster a pound; boiling water 4 fluid ounces. Melt together the lead plaster and Burgundy pitch; then add the opium previously mixed with the water, and boil them over a gentle fire to the proper consistence.—*United States.*

Emplastrum Picis—*Plaster of Pitch, L.*—Take of Burgundy pitch 2 pounds; resin of the spruce fir 1 pound; resin, wax, each 4 ounces; expressed oil of nutmegs an ounce; olive oil, water, each 2 fluid ounces. To the pitch, resin, and wax, melted together, add first the resin of the spruce fir, then the oil of nutmegs, the olive oil, and the water. Lastly, mix them all, and boil down to a proper consistence.—*London.*

Emplastrum Picis—*Plaster of Pitch, E.*—Take of Burgundy pitch one pound and a half; resin and beeswax, of each 2 ounces; oil of mace half an ounce; olive oil, water, each 1 fluid ounce. Liquefy the pitch, resin, and wax with a gentle heat; add the other articles; mix them well together, and boil till the mixture acquires the proper consistence.—*Edinburgh.*

Emplastrum Picis cum Cantharide—*Plaster of Pitch, with Spanish Flies, U.S.*—Take of Burgundy pitch 3½ pounds; cerate of Spanish flies half a pound. Melt them together by means of a water-bath, and stir them constantly until they thicken upon cooling.—*United States.*

Emplatre de Poix—*Plaster of Pitch, P.*—Take of yellow wax 1 pound; Burgundy pitch 3 pounds. Melt together, and strain through linen.—*Paris Codex.*

True Burgundy pitch is seldom to be obtained; the article sold is spurious, and is made with turpentine, resin, thus, palm oil, water, and other things in various proportions.

Emplastrum Plumbi—*Plaster of Lead, L.*—Take of oxide of lead, rubbed to very fine powder, 6 pounds; olive oil a gallon; water 2 pints. Boil them together with a slow fire, constantly stirring, until the oil and oxide of lead unite into the consistence of a plaster; but it will be proper to add a little boiling water, if nearly the whole of that which was used in the beginning should be evaporated before the end of the boiling.—*London.*

Emplastrum Lithargyri—*Plaster of Litharge, E.*—Take of litharge, in fine powder, 5 ounces; olive oil 12 fluid ounces; water 3 fluid ounces. Mix them; boil and stir constantly till the oil and litharge unite, replacing the water if it evaporate too far.—*Edinburgh.*

Emplastrum Lithargyri—*Plaster of Litharge, D.*—Take of litharge, in fine powder, 5 pounds; olive oil 9 pounds; boiling water 2 pints. Mix them at a high temperature, constantly stirring, until the oil and the litharge unite so as to form a plaster, supplying occasionally any waste of water that may take place.—*Dublin.*

Emplastrum Plumbi—*Lead Plaster, U.S.*—Take of semivitrified oxide of lead, in very fine powder, 5 pounds; olive oil a gallon; water 2 pints. Boil them together over a gentle fire, stirring constantly, until the oil and oxide of lead unite into plaster. It will be proper to add a little boiling water, if that employed at the commencement be nearly all consumed before the end of the process.—*United States.*

Emplatre Simple—*Simple Plaster, P.*—Take of litharge, in fine powder, 4 pounds; lard 4 pounds; olive oil 4 pounds; water 8 pounds. Melt the lard and the olive oil in a large copper vessel, add the litharge, and stir with a wooden spatula until it is thoroughly mixed; then add the water, and boil, constantly stirring, till all the oxide has disappeared and the plaster has become white and solid, which is ascertained by cooling a little piece in water; when it has become nearly cold, pull well to free from water, and roll.—*Paris Codex.*

Plaster of lead is an oleo-margarate of lead; it is made by heating together oils and fatty matters with oxide of lead, but is best obtained with olive oil. Union does not take place except about the temperature of 212°, which may be maintained by a slow fire, but is best secured by steam under pressure. Water must be present; it was thought formerly to serve no other purpose than to keep down the temperature and prevent charring; but it is now found to be an indispensable condition, for it dissolves the glycerine formed, and aids the chemical combination. The litharge ought to be very finely powdered. The water which is driven off in vapour must be replaced from time to time, and what is added must be hot, as the sudden addition of cold water will cause the plaster to froth up over the pan into the fire. It has lately been ascertained (Pirngruber) that the best mode of preparing this plaster is to make litharge into a firm pulp with water, and to add the pulp by degrees to the heated oil, stirring assiduously, and allowing sufficient time between each addition for the water to evaporate. In this way 24 pounds of perfectly homogeneous plaster may be easily made in an hour and a half.—Christison.

Lead plaster has a white or brownish white colour; it is britle, and, when heated, adheres to the skin. It is blackened by exposure to sulphuretted hydrogen gas. When agitated with hot pyroligneous or diluted nitric acid, it is decomposed, the oxide of lead is dissolved, and the fatty acids, on the mixture being left at rest, rise to the surface like an oil, and concrete in cooling. It is frequently made with very inferior oil, and also adulterated with white lead; this can only be detected by its making bad resin plaster, and by its appearance.

Emplastrum Resinæ—*Plaster of Resin, L.*—Take of resin half a pound; plaster of lead 3 pounds. To the plaster of lead, melted with a slow fire, add the resin, powdered, and mix.—*London.*

Emplastrum Resinosum—*Resinous Plaster, E.*—Take of litharge plaster 5 ounces; resin 1 ounce. Melt them together with a moderate heat, and stir the mixture well till it concretes on cooling.—*Edinburgh.*

Emplastrum Lithargyri cum Resinæ—*Litharge Plaster, with Resin, D.*—Take of litharge plaster 3½ pounds; yellow resin half a pound. Melt the litharge plaster by a moderate heat; then add the resin, reduced to a very fine powder, that it may melt quickly, and form a plaster.—*Dublin.*

Emplastrum Resinæ—*Resin Plaster, U.S.*—Take of resin, in powder, half a pound; lead plaster 3 pounds. To the lead plaster, melted over a gentle fire, add the resin, and mix them.—*United States.*

Emplatre Resolutif—*Resolvent Plaster, P.*—Take of soap plaster 4 ounces; plaster of hemlock 4 ounces; plaster of gum and diachylon 4 ounces; mercurial plaster 4 ounces. Melt all these plasters together with a gentle heat, and mix thoroughly.—*Paris Codex.*

Emplastrum Saponis—*Plaster of Soap, L. and D.*—Take of soap, sliced, half a pound; plaster of lead 3 pounds. Mix the soap with the melted plaster; then boil down to the proper consistence.—*London and Dublin.*

Emplastrum Saponis—*Plaster of Soap, E.*—Take of litharge plaster 4 ounces; gum plaster 2 ounces; castile soap, in shavings, 1 ounce. Melt the plasters together with a moderate heat, add the soap, and boil for a little.—*Edinburgh.*

Emplastrum Saponis—*Plaster of Soap, U.S.*—Take of soap, sliced, half a pound; lead plaster 3 pounds. Mix the soap with the melted plaster, and boil for a short time.—*United States.*

Emplatre de Savon—*Plaster of Soap, P.*—Take of simple plaster 4 pounds; white wax 3 ounces; white soap 4 ounces. Melt the plaster with the wax, and add the soap, very finely sliced; incorporate well by stirring. Camphor is often added to this plaster in the proportion of 4 grains to the ounce.—*Paris Codex.*

Emplastrum Simplex—*Simple Plaster, E.*—Take of beeswax 3

ounces; suet and resin, of each 2 ounces, Melt them together with a moderate heat, and stir the mixture briskly till it concretes on cooling. —*Edinburgh.*

EXTRACTS.

Extracts are usually prepared by evaporating the expressed juice of plants, or their infusions and decoctions, in water, proof spirit, or rectified spirit, at a temperature not exceeding 212° F., by means of a vapour-bath. Most of them, however, may be obtained of greatly superior quality by the process of evaporation *in vacuo*. And the extracts of expressed juices cannot, perhaps, be better prepared than by spontaneous evaporation in shallow vessels exposed to a current of air. Extracts should be evaporated to such a consistence as to form a firm pill mass when cold.—*Edinburgh.*

In the preparation of the extracts, evaporate, unless otherwise directed, as quickly as possible, in a broad, shallow dish, by means of a water-bath, until they have acquired the proper consistence for forming pills; and, towards the end of the process, stir them constantly with a spatula. Sprinkle upon the softer extracts a small quantity of alcohol.

EXTRACTUM ACONITI—*Extract of Aconite, L. and D.*—Take of aconite leaves, fresh, a pound. Bruise them, sprinkled with a little water, in a stone mortar; then press out the juice, and evaporate it, unstrained, to a proper consistence.—*London and Dublin.*

EXTRACTUM ACONITI—*Extract of Aconite, E.*—Take of the leaves of monkshood, fresh, any convenient quantity. Beat them into a pulp; express the juice; subject the residuum to percolation with rectified spirit, so long as the spirit passes materially coloured; unite the expressed juice and the spirituous infusion; filter; distil off the spirit; and evaporate the residuum in the vapour-bath, taking care to remove the vessel from the heat as soon as the due degree of consistence shall be attained.—*Edinburgh.*

EXTRACTUM ACONITI ALCOHOLICUM — *Alcoholic Extract of Aconite, U.S.*—Take of aconite, in coarse powder, a pound; diluted alcohol 4 pints. Moisten the aconite with half a pint of the diluted alcohol, and, having allowed it to stand for twenty-four hours, transfer it to an apparatus for displacement, and add gradually the remainder of the diluted alcohol. When the last portion of this shall have penetrated the aconite, pour in sufficient water, from time to time, to keep the powder covered. Cease to filter when the liquid which passes begins to produce a precipitate as it falls, in that which has already passed. Distil off the alcohol from the filtered liquor, and evaporate the residue to the proper consistence.—*United States.*

About five pounds of extract are obtained from one hundred weight of the fresh herb. The activity of the plant is very uncertain, and depends on the season and the nature of the soil.

EXTRACTUM ANTHEMIDIS—*Extract of Chamomiles, E.*—Take of chamomile a pound; boil it with a gallon of water down to 4 pints; filter the liquor hot; evaporate in the vapour-bath to the proper consistence.—*Edinburgh.*

EXTRACTUM FLORUM CHAMŒMELI—*Extract of Chamomile Flowers, D.*—Prepared as directed by the Edinburgh College.—*Dublin.*

"In these processes the volatile oil is dissipated, and a simple bitter extract remains, possessing scarcely any properties of the plant. It is of a deep brown colour, and has a grateful bitter taste, but scarcely any odour; one hundred weight of the flowers yield about forty-eight pounds of extract." Extract of gentian flavoured with oil of chamomile is often sold as the true extract; it is a shameful cheat, and can be easily detected by the flavour and appearance.

EXTRACTUM ALOES PURIFICATUM—*Purified Extract of Aloes, L. and D.*—Take of aloes, powdered, 15 ounces; water, boiling, a gallon. Macerate for three days with a gentle heat; afterwards strain, and set by, that the dregs may subside. Pour off the clear liquor, and evaporate to the proper consistence.— *London and Dublin.*

This extract consists chiefly of the extractive matter of the aloes; but during the inspissation it is partially oxidized and rendered less soluble; consequently the extract is not completely soluble in water. This extract is also prepared by repeated digestions in cold water, until the resin is left clean at the bottom. It is black, hard, and shiny. From one hundred weight of aloes you obtain about forty per cent. of extract.

EXTRACTUM BELLADONNÆ—*Extract of Deadly Nightshade, L.*—Take of deadly nightshade leaves, fresh, a pound. Bruise them, sprinkled with a little water, in a stone mortar; then press out the juice, and evaporate it, unstrained, to a proper consistence.—*London.*

EXTRACTUM BELLADONNÆ—*Extract of Belladonna, E.*—Take of belladonna, fresh, any convenient quantity; bruise it in a marble mortar into a uniform pulp; express the juice; moisten the residuum with water, and press again. Unite the expressed fluids, filter them, and evaporate the filtered liquid in the vapour-bath to the consistence of firm extract, stirring constantly towards the close.—*Edinburgh.*

EXTRACTUM BELLADONNÆ—*Extract of Belladonna, U.S.*—Prepared in the same manner as the "Extract of Stramonium Leaves," U.S.—*United States.*

EXTRACTUM BELLADONNÆ ALCOHOLICUM—*Alcoholic Extract of Belladonna, U.S.*—Prepared from belladonna, in coarse powder, in the same manner as "Alcoholic Extract of Aconite," U.S.—*United States.*

Extract of belladonna is an inspissated juice possessing the medicinal properties of the plant; inodorous, of a bitterish taste, and a brownish green colour; when good fresh plant is used, about four pounds are obtained from one hundred weight, varying, of course, with the season.

EXTRAIT DE BAIÊS DE SUREAU—*Extract of Elderberries, P.*—Take of unfermented juice of elderberries. Evaporate with a water-bath to the consistence of thick honey. In the same way prepare the juice of grapes, gooseberries, belladonna-berries, elaterium, and buckthorn, using the fermented juice of the last.—*Paris.*

EXTRACTUM CINCHONÆ CORDIFOLIÆ—*Extract of Heart-leaved Cinchona, L.*—Take of heart-leaved cinchona, bruised, 15 ounces; distilled water 4 gallons. Boil down in a gallon of the water to six pints, and strain the liquor while hot. In like manner boil down the bark in an equal measure of water four times, and strain. Lastly, all the liquors being mixed together, evaporate to a proper consistence.—*London.*

EXTRACTUM CINCHONÆ—*Extract of Bark, E.*—Take of any of the varieties of cinchona, but especially the yellow or red cinchona, in fine powder, 4 ounces; proof spirit 24 fluid ounces. Percolate the cinchona with the spirit; distil off the greater part of the spirit; and evaporate what remains in an open vessel over the vapour-bath to a due consistence.—*Edinburgh.*

EXTRACTUM CINCHONÆ—*Extract of Cinchona, D.*—Take of cinchona bark, in coarse powder, a pound; water 6 pounds. Boil for a quarter of an hour in a vessel nearly covered; then filter the decoction while it is yet hot, and set it aside. Boil the residue again in the same quantity of water, and filter it in the same manner; repeat this a third time; and, finally, mix all the liquors, and evaporate the mixture to a proper consistence.—*Dublin.*

EXTRACTUM CINCHONÆ—*Extract of Peruvian Bark, U.S.*—Take of Peruvian bark, in coarse powder, a pound; alcohol 4 pints; water a sufficient quantity. Macerate the Peruvian bark with the alcohol for four days; then filter by means of an apparatus for displacement, and, when the liquid ceases to pass, pour gradually upon the bark sufficient water to keep its surface covered. When the filtered tincture measures four pints, set it aside, and proceed with the filtration until six pints of infusion are obtained. Distil off the alcohol from the tincture, and evaporate the infusion till the liquids respectively are brought to the consistence of thin honey; then mix them, and evaporate so as to form an extract.—*United States.*

EXTRAIT SEC DE QUINQUINA—*Dry Extract of Cinchona, P.*—Take of cinchona (crown bark) any convenient quantity. Reduce the bark to coarse powder; moisten with half its weight of cold distilled water; after from twelve to fifteen hours' digesting, pack it in a displacement apparatus, and wash with distilled water of the temperature of from 60 to 70° F. until the liquor passes through tasteless; evaporate the liquors over a water-bath to the consistence of thick syrup; spread this over china plates, and place in a drying-room; when it has become sufficiently dry, detach from the plates and immediately put into small bottles, well stopped.—*Paris Codex.*

EXTRAIT DE QUINQUINA MOU—*Soft Extract of Cinchona, P.*—Take of cinchona (crown bark) 1 pound; distilled water 6 pounds. Bruise the bark and boil in the water for a quarter of an hour; strain, and boil the residue again a quarter of an hour in six other pints of water; strain; mix the liquors, and evaporate over a water-bath to the consistence of an extract. In the same manner prepare the extracts of heart-leaved and lance-leaved cinchona.—*Paris Codex.*

EXTRAIT DE CASSE—*Extract of Cassia, P.*—Take of cassia fistula 2 pounds; distilled water 2 pounds. Open the fruit, and remove, by means of a spatula, the pulp, seeds, and divisions; macerate in the cold water; strain without pressure through a woollen strainer; wash what remains behind with a little cold water; mix the liquors, and evaporate over a water-bath to the consistence of an extract.—*Paris Codex.*

Extract of cassia, or cassia pulp, has a sweetish, flat, not unpleasant taste if good. It is entirely soluble in water; and its active parts are also dissolved by alcohol.

EXTRAIT DE CACHEU—*Extract of Catechu, P.*—Take of catechu, bruised, 1 pound; boiling water 6 pounds. Infuse during twenty-four hours, stirring frequently; decant the liquor, and evaporate over a water-bath to the consistence of an extract.—*Paris Codex.*

Catechu is much subject to adulteration; genuine catechu is known by its external characters, by being easily chewed into a pulp free of sandiness, by its strong astringency, followed by a sweet after taste, and unattended with much bitterness, and by its being in a great measure soluble in cold water.

EXTRACTUM COLCHICI ACETUM—*Acetic Extract of Meadow Saffron, L.*—Take of meadow saffron cormus, fresh, a pound; acetic acid 3 fluid ounces. Bruise the cormus, sprinkled gradually with the acetic acid; then press out the juice, and evaporate it in an earthen vessel, not glazed with lead, to a proper consistence.—*London.*

EXTRACTUM COLCHICI ACETUM—*Acetic Extract of Colchicum, E.*—Take of the bulb of colchicum a pound; pyroligneous acid 3 fluid ounces. Beat the colchicum to a pulp, gradually adding the acid; express the liquid, and evaporate it in a porcelain vessel, not glazed with lead, over the vapour-bath, to the due consistence.—*Edinburgh.*

The use of the acetic acid is to render the salt of colchicia which the meadow saffron contains more soluble. It should yield one fourth.

EXTRACTUM COLCHICI CORMI—*Extract of Meadow Saffron Cormus, L.*—Take of the meadow saffron cormus, fresh, a pound. Bruise the cormus, sprinkled with a little water, in a stone mortar; then press out the juice, and evaporate it, unstrained, to a proper consistence.—*London.*

EXTRACTUM COLOCYNTHIDIS—*Extract of Colocynth, L. and D.*—Take of colocynth, cut in pieces, a pound; distilled water 2 gallons. Mix and boil with a slow fire for six hours, frequently adding distilled water, that it may always fill the same measure. Strain the liquor while hot; lastly, evaporate it to a proper consistence.—*London and Dublin.*

EXTRACTUM COLOCYNTHIDIS—*Extract of Colocynth, E.*—Take of colocynth a pound; water 2 gallons. Boil gently for six hours, replacing the evaporated water occasionally. Strain the liquor while hot, and evaporate it in the vapour-bath to the due consistence.—*Edinburgh.*

Colocynth should yield about twenty-five per cent. of extract; it becomes very tough when kept, is a dark colour, and extremely bitter.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM—*Compound Extract of Colocynth, L.*—Take of colocynth, cut in pieces, 6 ounces; purified extract of aloes 12 ounces; scammony, powdered, 4 ounces; cardamom (husked), powdered, an ounce; soap 3 ounces; proof spirit a gallon. Macerate the colocynth in the spirit, with a gentle heat, for four days; strain the spirit, and add to it the aloes, scammony, and soap; afterwards evaporate to a proper consistence, the cardamom being mixed towards the end.—*London.*

EXTRACTUM COLOCYNTHIDIS COMPOSITUM—*Compound Extract of Colocynth, D.*—Take of the pulp of colocynth, cut small, 6 ounces; hepatic aloes 11 ounces; scammony 4 ounces; lesser cardamom seeds, husked, an ounce; hard soap 3 ounces; proof spirit a gallon. Digest the colocynth in the proof spirit in a covered vessel, with a medium heat, for four days; express and strain the liquor, and add to it the aloes and scammony, first separately reduced to powder; then evaporate the mixture with a medium heat to a proper consistence for making pills, and, towards the end of the inspissation, add the gelatinized soap and the powdered seeds, and, with frequent stirring, mix the whole intimately together.—*Dublin.*

EXTRACTUM COLOCYNTHIDIS COMPOSITUM—*Compound Extract of Colocynth, U.S.*—Take of colocynth, deprived of the seeds, and sliced, 6 ounces; aloes, in powder, 12 ounces; scammony, in powder, 4 ounces; cardamom, in powder, an ounce; soap 3 ounces; diluted alcohol a gallon. Macerate the colocynth in the diluted alcohol, with a gentle heat, for four days; express and filter the liquor, and add to it the aloes, scammony, and soap; then evaporate to the proper consistence, and, near the end of the process, mix the cardamom with the other ingredients.—*United States.*

In preparing this extract, the colocynth should be deprived of the seeds as directed by the United States' Pharmacopœia. Castile soap is understood, which must be scraped into fine shavings. The college directions for making this preparation are altogether not sufficiently explicit: no mention is made of recovering the spirit by distillation, which is always done, nor of the great necessity of having good scammony, on which its efficacy partly depends. A cheaper extract of colocynth is also made by boiling the colocynth in hot water for some hours, until it is exhausted, straining off the liquor, concentrating to one quarter, adding the aloes, scammony, and soap, evaporating to the proper consistence, and adding the cardamoms in fine powder at the conclusion.

EXTRACTUM CONII—*Extract of Hemlock, L.*—Take of hemlock leaves, fresh, a pound. Bruise them, sprinkled with a little water, in a stone mortar, then press out the juice, and evaporate it, unstrained, to a proper consistence.—*London.*

EXTRACTUM CONII—*Extract of Hemlock, E.*—Take of conium any convenient quantity; beat it into a uniform pulp in a marble mortar, express the juice, and filter it. Let this juice be evaporated to the consistence of a very firm extract, either in a vacuum with the aid of heat, or spontaneously in shallow vessels exposed to a strong current of air freed from dust by gauze screens. This extract is of good quality only when a very strong odour of conia is disengaged by degrees on its being carefully triturated with aqua potassæ.—*Edinburgh.*

SUCCUS SPISSATUS CONII—*Inspissated Juice of Hemlock, D.*—Express hemlock leaves, gathered when the flowers are about to appear, and allow the juice to remain six hours to deposit the fæces; then evaporate the pure juice to a proper consistence with a moderate heat.—*Dublin.*

EXTRAIT DE CIGUË—*Extract of Hemlock, P.*—Take of hemlock juice, clarified by heat, any convenient quantity. Evaporate over a water-bath to the consistence of an extract.

In the same manner prepare the extracts of deadly nightshade, henbane, thornapple, succory, dandelion, fumitory, buckbean, nettle, scurvygrass, and cress.—*Paris Codex.*

EXTRAIT DE CIGUË AVEC LA FECULE VERTE—*Extract of Hemlock with Chlorophyll, P.*—Bruise the hemlock and express the juice; strain, evaporate in plates, in a drying-room, at a temperature of about 120° F. until it is entirely dry; then expose to the air till the extract is sufficiently soft to remove easily from the plates. Put in pots and secure tightly.

In the same manner prepare the extracts, with chlorophyll, of deadly nightshade, henbane, thornapple, monkshood, anemony, lettuce, and poison-ivy.—*Paris Codex.*

This extract or inspissated juice should be of a clear olive colour, have a fœtid odour, and a bitterish, saline taste, and disengage a powerful odour of conia, when rubbed with pure potassa. One cwt. of hemlock leaves yield about six pounds of extract.

Extract of hemlock is prepared largely in the country where the herb abounds, and where it is gathered, bruised, and evaporated down within a few hours.

EXTRAIT ALCOOLIQUE DE CIGUË—*Spirituous Extract of Hemlock, P.*—Take of dried hemlock leaves 2 pounds; alcohol, of sp. gr. 920°, 7 pounds. Reduce the hemlock to coarse powder; moisten with a pound of the spirit; transfer it to an apparatus for displacement; allow it to stand for twelve hours; wash with the rest of the spirit; and, when the last portion shall have penetrated the powder, pour in sufficient water to keep the powder covered; cease to filter when the liquid which passes begins to produce a precipitate as it falls in that which has already passed. Distil off the spirit from the filtered liquor, and evaporate to the consistence of an extract by means of a water-bath.

In the same manner prepare the spirituous extract of monkshood, deadly nightshade, henbane, thornapple, anemony, foxglove, rue, savine, leopard's bane, hops, cinchona, pomegranate-root bark, narcissus, colchicum, columba, ipecacuanha, sarsaparilla, valerian, snakeroot, hellebore, jalap, cantharides.—*Paris Codex.*

EXTRACTUM CONII ALCOHOLICUM—*Alcoholic Extract of Hemlock, U.S.*—Prepared in the same manner as the alcoholic extract of monkshood, U.S.—*United States.*

EXTRACTUM DULCAMARA—*Extract of Bittersweet, U.S.*—Prepared in the same manner as extract of gentian, U.S.—*United States.*

EXTRACTUM DIGITALIS—*Extract of Foxglove, L.*—Take of foxglove leaves, fresh, a pound. Bruise them, sprinkle with a little water, in a stone mortar; then press out the juice, and evaporate it, unstrained, to a proper consistence.—*London.*

EXTRACTUM DIGITALIS—*Extract of Foxglove, E.*—This extract is best prepared from the fresh leaves of digitalis, by any of the processes indicated for extract of conium.—*Edinburgh.*

One cwt. of the herb yields about five pound per cwt. of extract: the same remarks apply to this, in common with the other green extracts.

EXTRACTUM ELATERII—*Extract of Elaterium, L.*—Slice ripe wild cucumbers, and strain the juice, very gently expressed, through a very fine hair sieve; then set it by for some hours until the thicker part has subsided. The thinner supernatant part being rejected, dry the thicker part with a gentle heat.—*London.*

EXTRACTUM ELATERII—*Extract of Elaterium, E.*—Take of the fruit of momordica elaterium, before it is quite ripe, any convenient quantity; cut the fruit and express the juice gently through a fine sieve; allow the liquid to rest till it becomes pretty clear; pour off the supernatant liquor, which may be thrown away; and dry the feculence with a gentle heat.—*Edinburgh.*

EXTRACTUM ELATERII—*Extract of Elaterium, D.*—Slice ripe wild cucumbers, and strain the juice through a fine hair sieve into a glass vessel; then set it aside for some hours until the thicker part subside; reject the supernatant liquor, and dry the fecula, laid upon a linen cloth and covered with another, by a medium heat.—*Dublin.*

The substance obtained by these processes is neither an extract nor an inspissated juice, but a peculiar modification of fecula, combined with the active principle of the fruit; it is, therefore, surprising that both the London and Dublin Colleges call it extractum elaterii. Elaterium is contained in the juice which surrounds the seeds only, and it subsides from this juice, obtained without pressure; a small

quantity of inferior elaterium is also procured by evaporating the supernatant liquor. From Dr. Clutterbuck's experiments the quantity of elaterium in the fruit appears to be so small that he obtained six grains of it only from forty of the cucumbers. It is often adulterated with starch, on which account we seldom ever obtain two samples of it of the same strength. When good, elaterium is of a paleish green colour, has a bitter and rather acrid taste, is light, pulverulent, and inflammable.—A. T. Thomson.

Elaterium, by analysis, yielded very nearly—

Elatin (green resinous extract)	17
Bitter principle	44
Starch	6
Woody fibre	27
Earthy matter	7
	101

In commerce two distinct kinds of elaterium are commonly met with. The one in irregular, dry, pulverulent fragments, of a dusky green hue; the other in thin, hard plates, of a slate-pencil colour, with a slight shade of green. The latter is by far the more potent.—Dr. Collier.

Elaterium, when exhausted by rectified spirit, the solution, concentrated and poured into hot diluted aqua potassa, deposits, on cooling, minute silky, colourless crystals, weighing from a seventh to a fourth of the elaterium.

Extrait de Fiel de Bœuf—*Extract of Ox Gall, P.*—Take of fresh ox gall any convenient quantity. Open all the vesicles that contain the gall, pass through a woollen cloth strainer, and evaporate over water-bath to the consistence of an extract.—*Paris Codex.*

Ox gall is prepared either hard or soft; it is getting into general use.

Extrait de Gayac—*Extract of Guaiacum, P.*—Take of guaiacum, rasped, 2 pounds; distilled water 20 pounds. Boil the guaiacum with the water for an hour, and strain; repeat the decoction, and strain; let the mixed liquors deposit for twelve hours; decant and evaporate by boiling in a little vessel, which must be kept continually filled, till the liquor is reduced one quarter; continue the evaporation over a water-bath till it is of a soft consistence, and then add the eighth of its weight of alcohol; mix, and complete the evaporation to the consistence of an extract.—*Paris Codex.*

Guaiacum wood yields about four per cent. of extract. The alcohol is added to divide the resin, which is precipitated during the concentration, and so render the extract homogeneous.

Extractum Gentianæ—*Extract of Gentian, L. and D.*—Take of gentian, sliced, 2½ pounds; distilled water, boiling, 2 gallons. Macerate for twenty-four hours; then boil down to a gallon, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London and Dublin.*

Extractum Gentianæ—*Extract of Gentian, E.*—Take of gentian any convenient quantity. Bruise it to a moderately fine powder; mix it thoroughly with half its weight of distilled water; in twelve hours put it into a proper percolator, and exhaust it by percolation with temperate distilled water; concentrate the liquid, filter before it becomes too thick, and evaporate in the vapour-bath to a due consistence.—*Edinburgh.*

Extractum Gentianæ—*Extract of Gentian, U.S.*—Take of gentian, in coarse powder, a pound; water a sufficient quantity. Mix the gentian with a pint of the water, and, after allowing the mixture to stand for twenty-four hours, introduce it into an apparatus for displacement, and pour water upon it gradually until the liquid passes but slightly impregnated with the properties of the gentian. Heat the filtered liquid to the boiling point, strain, and evaporate to the proper consistence.—*United States.*

The bitter principle of gentian is not injured much by preparation. The extract is inodorous, dark brown, shining, and tenacious, and possesses a strong, though not a disagreeable, bitter taste.

Gentian-root yields about thirty-three per cent. of extract. The best method of preparing it is by cold water, as directed by the Edinburgh College; the produce is not equal to that obtained by hot infusion, but the preparation is very much superior, both in appearance and power.

Extractum Glycyrrhizæ—*Extract of Liquorice, L. and D.*—Take of liquorice, sliced, 2½ pounds; distilled water, boiling, 2 gallons. Macerate for twenty-four hours; then boil down to a gallon, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London and Dublin.*

Extractum Glycyrrhizæ—*Extract of Liquorice, E.*—Cut liquorice-root into small chips, dry it thoroughly with a gentle heat, reduce it to a moderate fine powder, and proceed as for extract of gentian.—*Edinburgh.*

Suc de Reglisse Purifié—*Refined Extract of Liquorice, P.*—Take of solazzi juice 1 pound; cold water Q.S. Exhaust the juice, cut into small pieces, by percolation with the cold water; strain, and evaporate to the consistence of an extract.

In the same manner prepare the extract of socotrine aloes.—*Paris Codex.*

Liquorice-root yields, by macerating with hot water, about thirty-three per cent. of extract, with cold water about twenty per cent. It is always prepared in England from the root, except when a cheap preparation is required, and then from the Italian juice, as recommended by the Paris Codex; the taste is, however, so different that an adulteration even can be detected.

Succus Glycyrrhizæ is prepared in Spain and Sicily in the following manner:—The roots, when three years old, are dug up, washed, then crushed in an olive-mill, which presses out the juice, in the same way as oil from olives. The roots are then boiled for four or five hours, again pressed in the olive-press, and the whole juice is, lastly, slowly boiled in an iron vessel to a proper consistence, and moulded into rolls.—A. T. Thomson.

Extrait de Genièvre—*Extract of Juniper Berries, P.*—Take of dried juniper berries 1 pound; distilled water 30 pounds. Gently bruise the berries with a wooden pestle; macerate in the water for twenty-four hours; strain, with gentle expression, and add a new quantity of water; macerate for twelve hours; filter the mixed liquors, and evaporate to the consistence of an extract.—*Paris Codex.*

Extractum Hæmatoxyli—*Extract of Logwood, L. and D.*—Take of logwood, powdered, 2½ pounds; distilled water, boiling, 2 gallons. Macerate for twenty-four hours; then boil down to a gallon, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London and Dublin.*

Extractum Hæmatoxyli—*Extract of Logwood, E.*—Take of logwood, in fine chips, a pound; boiling water a gallon. Macerate for twenty-four hours, then boil down to four pints, strain, and concentrate in the vapour-bath to the due consistence.—*Edinburgh.*

Extractum Hæmatoxyli—*Extract of Logwood, U.S.*—Take of logwood, rasped, a pound; water a gallon. Boil down to four pints, and strain the liquor while hot; then evaporate to the proper consistence.—*United States.*

One hundred weight of logwood yields about twenty pounds of extract; it is of a deep ruby colour, almost black, inodorous, and has a sweetish astringent taste. It becomes very hard by keeping.

Extractum Hyoscyami—*Extract of Henbane, L. and D.*—Take of henbane leaves, fresh, a pound. Bruise them, sprinkled with a little water, in a stone mortar; then press out the juice, and evaporate it, unstrained, to a proper consistence.—*London and Dublin.*

Extractum Hyoscyami—*Extract of Henbane, E.*—This extract is to be prepared from the fresh leaves of henbane by any of the processes directed for extract of hemlock.—*Edinburgh.*

Extractum Hyoscyami—*Extract of Henbane, U.S.*—Prepared in the same manner as extract of stramonium leaves, U.S., from fresh henbane leaves.—*United States.*

Extractum Hyoscyami Alcoholicum—*Alcoholic Extract of Henbane, U.S.*—Prepared in the same manner as alcoholic extract of aconite, U.S., from henbane leaves, in coarse powder.—*United States.*

Extract of hyoscyamus leaves has a disagreeable fœtid odour, peculiar to the plant, and a nauseous, bitterish, subsaline taste; it is of a dusky olive-green colour, when prepared carefully, but is mostly found nearly black.

Extract of henbane and all the green extracts are best made, if possible, very near the district in which they are grown; a large quantity prepared in Cambridge, by means of a malt-kiln, situated in the field where the plant grew, gave an abundant and excellent preparation; during the conveyance to London the herb is likely to become heated and damaged, and so far altered as to prevent the possibility of making the extract green.

Extractum Jalapæ—*Extract of Jalap, L.*—Take of jalap, powdered, 2½ pounds; rectified spirit a gallon; distilled water 2 gallons. Macerate the jalap-root in the spirit for four days, and pour off the tincture. Boil down the residue in the water to half a gallon; afterwards strain the tincture and the decoction separately, and let the latter be evaporated, and the former distil, until each thickens. Lastly, mix the extract with the resin, and evaporate to a proper consistence. This extract should be kept soft, which may be fit to form pills, and hard, which may be rubbed to powder.—*London.*

Extractum sive Resina Jalapæ—*Extract or Resin of Jalap, E.*—Take any convenient quantity of jalap, in moderately fine powder; mix it thoroughly with enough of rectified spirit to moisten it well; put it in twelve hours into a percolator, and exhaust the powder with rectified spirit; distil off the greater part of the spirit, and concentrate the residuum over the vapour-bath to a due consistence.—*Edinburgh.*

Extractum Jalapæ—*Extract of Jalap, D.*—Take of jalap-root, bruised, a pound; rectified spirit 4 pints; water a gallon. Macerate the jalap-root in the spirit four days, and pour off the spirit. Boil what remains in the water to 2 pounds. Then strain the tincture and

the decoction separately; evaporate the latter and distil the former, until each is inspissated. Finally, mix the extract with the resin, and continue the evaporation by means of steam, until the whole is of a proper thickness.—*Dublin.*

Extractum Jalapæ—*Extract of Jalap, U.S.*—Prepared in the same way as extract of Peruvian bark, U.S., from jalap, in coarse powder.—*United States.*

Résine de Jalap—*Resin of Jalap, P.*—Take of jalap-root 2 pounds; alcohol, of sp. gr. 870, 8 pounds. Reduce the jalap to coarse powder; macerate in the alcohol for several days; press and filter; macerate with a second and a third quantity of spirit; press and filter as before. Mix the filtered liquors and distil them over a water-bath; mix the residue with twenty or thirty times its weight of warm water; wash well the resinous matter which separates; lastly, dissolve it in a small quantity of alcohol, and evaporate on plates, until the resin has become sufficiently dry. In the same manner prepare the resins of scammony and cinchona.—*Paris Codex.*

Jalap-root yields about fifty per cent. of watery extract, and about fifteen pounds of resinous extract (these extracts contain all the principles of the jalap-root); it is of a deep brown colour, slightly odorous.

Extractum Juglandis—*Extract of Butternut, U.S.*—Prepared in the same way as extract of gentian, U.S., from butternut in coarse powder.—*United States.*

Extractum Krameriæ—*Extract of Rhatany, E.*—This extract is to be prepared from rhatany-root in the same way with that of liquorice-root.—*Edinburgh.*

Extractum Krameriæ—*Extract of Rhatany, U.S.*—To be prepared in the same way as extract of gentian, U.S., from rhatany, in coarse powder.—*United States.*

Extractum Lactucæ—*Extract of Lettuce, L.*—Take of lettuce leaves, fresh, a pound. Bruise them, sprinkled with a little water, in a stone mortar; then press out the juice, and evaporate it, unstrained, to a proper consistence.—*London.*

Extrait de Laitue—*Extract of Lettuce, P.*—Take of lettuce, ready to flower, any convenient quantity. Reject the leaves; bruise the stalks; express the juice; and evaporate on plates over a stove.—*Paris Codex.*

One cwt. of lettuce yields about five pounds of extract. It is of a dark brown or black colour; has a sweetish and somewhat bitter taste, with a virose odour; it quickly attracts moisture from the air, and should, therefore, be kept tightly closed. The wild lettuce, "lactuca virosa," is found abundantly in the vicinity of London. The whole plant contains a milky juice, possessing an opiate, virose smell, and a bitter, subacrid taste. As to the "lactuca sativa," the quantity of active material contained in it is very slight compared with that yielded by the wild species. The juice of the garden lettuce is white; that of the wild lettuce is yellow, of a very unpleasant smell, resembling that of opium, and of a bitter, nauseous taste. —Dr. Collier.

Extractum Lupuli—*Extract of Hops, L. and D.*—Take of hops half a pound; distilled water, boiling, 2 gallons. Macerate for twenty-four hours, then boil down to a gallon, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London and Dublin.*

Extractum Lupuli—*Extract of Hops, E.*—This extract is prepared from hops in the same way with the extract of logwood.—*Edinburgh.*

Extract of hops is of a light brown colour, and has the bitter taste of the hop unimpaired.

Extractum Nucis Vomicæ—*Extract of Nux Vomica, E.*—Take of nux vomica any convenient quantity. Expose it in a proper vessel to steam until it is completely softened; slice it, dry it thoroughly, and immediately grind it in a coffee-mill; exhaust the powder, either by percolating it with rectified spirit or by boiling it with repeated portions of rectified spirit, until the spirit comes off free of bitterness. Distil off the greater part of the spirit, and evaporate what remains in the vapour-bath to the proper consistence.—*Edinburgh.*

Extractum Nucis Vomicæ—*Extract of Nux Vomica, U.S.*—Take of nux vomica a pound; alcohol a sufficient quantity. Expose the nux vomica to steam 'till it is softened; then, having sliced and dried it, grind it into powder. Introduce it into an apparatus for displacement, and pour alcohol upon it gradually until the liquid passes without bitterness. Distil off the greater part of the alcohol from the filtered liquor, and evaporate the residue to the proper consistence.—*United States.*

Extractum Opii Purificatum—*Purified Extract of Opium, L.*—Take of opium, sliced, 20 ounces; distilled water a gallon. Add a little water to the opium, and macerate for twelve hours, that it may soften; then, the rest of the water being poured in gradually, rub them until they are very well mixed, and set by, that the dregs may subside; afterwards strain the liquor, and evaporate to a proper consistence.—*London.*

Extractum Opii—*Extract of Opium, E.*—Take of opium 1 pound; water 5 pints. Cut the opium into small fragments, macerate it for twenty-four hours in a pint of water, break down the fragments with the hand, express the liquid with pretty strong pressure; break down the residuum again in another pint of the water, let it macerate for twenty-four hours, and express the liquid; repeat the maceration and expression the same way until the water is all used. Filter the successive infusions as they are made, passing them through the same filter; unite and evaporate them in the vapour-bath to the due consistence.—*Edinburgh.*

Extractum Opii Aquosum—*Watery Extract of Opium, D.*—Take of opium 2 ounces; boiling water a pint. Rub the opium in the water for ten minutes, and, after a little, pour off the solution; rub the residuary opium in an equal quantity of boiling water, for the same space of time, pouring off also this solution; and repeat the operation a third time. Mix together the decanted solutions, and expose the mixture in a broad open vessel to the air for two days. Lastly, strain it through linen, and, by slow evaporation, form it into an extract.—*Dublin.*

Extrait d'Opium—*Extract of Opium, P.*—Take of picked opium pound. Cut the opium into slices, and steep it for twelve hours in six pounds of cold distilled water; then knead well with the hands, and, after macerating for twelve hours more, strain through linen with pressure; submit the residuum to maceration in another six pounds of cold distilled water, and proceed as before; decant the liquors, and evaporate them over a vapour-bath to the consistence of an extract. Macerate this extract in eight pounds or about sixteen times its weight of cold water, agitating from time to time to facilitate the solution; filter the solutions, and evaporate them to pilular consistence.—*Paris Codex.*

Extrait d'Opium Privé de Narcotine—*Extract of Opium free from Narcotina, P.*—Take of extract of opium any convenient quantity; cold water Q.S. Dilute the extract of opium with the water to the consistence of a syrup; introduce this into a vessel, and pour on it eight times its volume of sulphuric ether; close the vessel tightly, and agitate frequently during one or two days; pour off the ether, and add a new quantity, proceeding as before; after two days decant this ethereal liquor also, and replace by another quantity of ether, and continue this till the ether leaves no residue by evaporation; evaporate then the aqueous solution to a due consistence.—*Paris Codex.*

Extrait d'Opium au Vin—*Vinous Extract of Opium, P.*—Take of picked opium a pound; white wine 4 pounds. Cut the opium into small slices, and macerate in the wine for twenty-four hours, shaking frequently; strain with pressure; macerate the residuum in another two pounds of white wine, and, after several hours, strain and press again; filter the liquors, and evaporate them in the vapour-bath to the consistence of an extract.—*Paris Codex.*

"Water takes up a certain proportion of all the constituents of crude opium, but less of the resinous than of the gummy; it dissolves the morphia, codeia, narcotina, gum, extractive, and holds the oil and resin in suspension; but, by concentration, the two last, in a great measure, separate with the narcotine, which appears to be saturated by the oil and resin acid, and of which the opium is in a great measure freed by repeated solutions. In the Dublin preparation the quantity of active matter must necessarily be greater than in the London and Edinburgh, owing to the employment of boiling water for the second and third trituration. This extract, therefore, differs very little from opium, but, as the inspissation cannot always be conducted exactly in the same manner, its strength must consequently vary."

Opium yields about half its weight of firm extract; it is inodorous until warmed, a bitter taste, and deep brown colour. It is not altogether soluble in water; but is not precipitated from its solution by alcohol. It, however, affords precipitates with the following substances, which ought not, therefore, to enter into prescriptions with its solution, viz., solutions of astringent vegetables, the alkaline carbonates, bichloride of mercury, sulphate of copper, sulphate of zinc, acetate and diacetate of lead, and nitrate of silver.—A. T. Thomson.

Extractum Papaveris—*Extract of Poppy, L.*—Take of poppy capsules, bruised, the seeds being taken out, 15 ounces; distilled water, boiling, a gallon. Macerate for twenty-four hours; then boil down to four pints, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London.*

Extractum Papaveris—*Extract of Poppy, E.*—Take of poppy heads, without the seeds, 15 ounces; boiling water a gallon. Macerate for twenty-four hours; boil down to four pints; filter the liquor hot, and evaporate over the vapour-bath to the due consistence.—*Edinburgh.*

The extract is of a glistening black colour, with a slightly bitter taste, and virose odour, quite different from that of opium.

The Extractum Papav. Alb., as ordered to be made by the Pharmacopœias, is a very inefficient preparation. A great quantity of starch is suspended in the hot solution, and is carried through the filter into the evaporating-pan, when it is partly converted into acetic

acid, and serves no other purpose than to increase the produce. The directions should be similar to those for preparing the syrup, when the starch is properly ordered to be allowed to subside, and the clear liquor only used. By the college process an average of thirty per cent. of extract is obtained from poppies, whereas, by separating the starch, you cannot get more than ten per cent., proving clearly that the officinal preparation contains two thirds inert matter.

EXTRACTUM PAREIRÆ—*Extract of Pareira, L.*—Take of pareira, bruised, 2½ pounds; distilled water, boiling, 2 gallons. Macerate for twenty-four hours; then boil down to a gallon, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London.*

EXTRACTUM PAREIRÆ—*Extract of Pareira, E.*—This extract is to be prepared from pareira-root in the same way with the extract of liquorice-root.—*Edinburgh.*

Extract of pareira is of a brown colour, and has a sweet taste at first, and afterwards, warm, bitter.

EXTRACTUM PODOPHYLLI—*Extract of Mayapple, U.S.*—Prepared in the same manner as extract of Peruvian bark, U.S., from mayapple in coarse powder.—*United States.*

EXTRACTUM QUASSIÆ—*Extract of Quassia, E.*—This extract is to be prepared from quassia in the same way with the extract of liquorice-root.—*Edinburgh.*

EXTRACTUM QUASSIÆ—*Extract of Quassia, U.S.*—Prepared in the same manner as extract of gentian, U.S., from quassia, rasped.—*United States.*

EXTRACTUM CORTICIS QUERCUS—*Extract of Oak Bark, D.*—Prepared in the same way as extract of logwood.—*Dublin.*

EXTRACTUM RHEI—*Extract of Rhubarb, L. and D.*—Take of rhubarb, powdered, 15 ounces; proof spirit a pint; distilled water 7 pints. Macerate for four days with a gentle heat, afterwards strain, and set by, that the dregs may subside. Pour off the liquor, and evaporate it, when strained, to a proper consistence.—*London and Dublin.*

EXTRACTUM RHEI—*Extract of Rhubarb, E.*—Take of rhubarb 1 pound; water 5 pints. Cut the rhubarb into small fragments, macerate for twenty-four hours in three pints of the water, filter the liquor through a cloth, and express it with the hands or otherwise moderately; macerate the residuum with the rest of the water for twelve hours at least, filter the liquor with the same cloth as before, and express the residuum strongly. The liquors, filtered again if necessary, are then to be evaporated together to a proper consistence in the vapour-bath. The extract, however, is obtained of finer quality by evaporation in vacuum with a gentle heat.—*Edinburgh.*

EXTRAIT DE RHUBARBE—*Extract of Rhubarb, P.*—Take of picked rhubarb, cut into small pieces, a pound; cold water 4 pounds. Macerate the rhubarb in the water for twenty-four hours, strain with slight pressure; macerate again in three parts of cold water for twelve hours; strain and press the residuum; filter the mixed liquors, and evaporate in a vapour-bath to the consistence of an extract.

In the same manner prepare the extract of colocynth and mushroom.—*Paris Codex.*

Extract of rhubarb smells very strongly of the root, has an astringent aromatic taste, deep yellow red colour, and is very tough.

Extract of rhubarb is best prepared by evaporation in vacuo; an article of great strength is also prepared by forming coarsely powdered Turkey rhubarb into a pulp with half its weight of cold distilled water, pressing and evaporating the solution quickly; it is of a deep golden hue, with all the virtue of the rhubarb.

EXTRACTUM RUTÆ GRAVEOLENTIS—*Extract of Rue, D.*—Prepared after the manner of the simple extracts.—*Dublin.*

This extract is inodorous, and has a bitter acrid taste.

EXTRACTUM SIVE RESINA SCAMMONII.—*Extract or Resin of Scammony, E.*—Take any convenient quantity of scammony in fine powder; boil it in successive portions of proof spirit till the spirit cease to dissolve anything; filter. Distil the liquid till little but water passes over. Pour away the watery solution from the resin at the bottom; agitate the resin with successive portions of boiling water till it is well washed; and, lastly, dry it at a temperature not exceeding 240° F.—*Edinburgh.*

EXTRACTUM SARZÆ—*Extract of Sarsaparilla, L.*—Take of sarsaparilla, sliced, 2½ pounds; distilled water, boiling, 2 gallons. Macerate for twenty-four hours; then boil down to a gallon, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London.*

EXTRACTUM SARZÆ FLUIDUM—*Fluid Extract of Sarsaparilla, E.*—Take of sarzæ, in chips, 1 pound; boiling water 6 pints. Digest the root for two hours in four pints of the water; take it out, bruise it, replace it, and boil for two hours; filter, and squeeze out the liquid; boil the residuum in the remaining two pints of water, and filter and squeeze out this liquor also; evaporate the united liquors to the consistence of thin syrup; add, when the product is cool, as much rectified spirit as will make in all sixteen fluid ounces. Filter.

This fluid extract may be aromatized with volatile oils or warm aromatics.—*Edinburgh.*

EXTRACTUM SARSAPARILLÆ FLUIDUM—*Fluid Extract of Sarsaparilla, D.*—Take of root of sarsaparilla, sliced, 1 pound; water 12 pints. Boil for an hour, and pour off the liquor. Then add 12 pints more of water, and repeat the boiling and effusion. Let the fluid be strongly expressed from the residuary matter. Set aside the mixed decoctions until the fæces subside; then evaporate the mixture, by continued ebullition, to 30 ounces, and add 2 ounces of rectified spirit.—*Dublin.*

EXTRACTUM SARSAPARILLÆ—*Extract of Sarsaparilla, U.S.*—Prepared in the same manner as alcoholic extract of aconite, U.S., from sarsaparilla in coarse powder.—*United States.*

The experiments of the late Mr. Pope, Mr. Battley, and M. Robinet, have demonstrated that the red, or, as it may be termed, Jamaica sarsaparilla yields a much larger quantity of extract than any of the other species of sarsaparilla. It also appears from Mr. Pope's experiments, "that by submitting the root cut transversely to the action of steam or of distilled water, at a temperature somewhat below boiling, an elegant extract may be obtained, containing all the virtues of the plant, not liable to decomposition, and applicable to the purposes of extemporaneous prescription"; whilst, by the method ordered by the London College, an insoluble, inefficacious extract only is obtained.—A. T. THOMSON.

An excellent extract is prepared by using cold distilled water. The fluid extracts, as they are called, of the Edinburgh and Dublin Pharmacopœias, answer to the concentrated compound decoctions now so generally used—Jamaica sarza-root yields about forty per cent. of extract; of course much depends upon the quality of the root.

EXTRACTUM STRAMONII—*Extract of Thornapple, L.*—Take of thornapple seeds 15 ounces; distilled water, boiling, a gallon. Macerate for four hours, in a vessel lightly covered, near the fire; afterwards take out the seeds, and bruise them in a stone mortar; return them when bruised to the liqnor. Then boil down to four pints, and strain the liquor while hot. Lastly, evaporate to a proper consistence.—*London and Dublin.*

EXTRACTUM STRAMONII—*Extract of Thornapple, E.*—Take of seeds of stramonium any convenient quantity; grind them well in a coffee-mill. Rub the powder into a thick mass with proof spirit; put the pulp into a percolator, and transmit proof spirit till it passes colourless; distil off the spirit, and evaporate what remains in the vapour-bath to a proper consistence.—*Edinburgh.*

EXTRACTUM STRAMONII SEMINIS—*Extract of Stramonium Seeds, U.S.*—Take of stramonium seeds, ground into powder, a pound; diluted alcohol a sufficient quantity. Having rubbed the powder with half a pint of diluted alcohol, introduce the mixture into an apparatus for displacement, and pour upon it gradually diluted alcohol till the liquid passes colourless. Distil off the alcohol from the filtered liquor, and evaporate the residue to the proper consistence.—*United States.*

EXTRACTUM STRAMONII FOLIORUM—*Extract of Stramonium Leaves, U.S.*—Take of stramonium leaves a pound. Bruise them in a stone mortar, sprinkling on them a little water; then express the juice, and, having heated it to the boiling point, strain, and evaporate to the proper consistence.—*United States.*

EXTRAIT DE SEMENCES DE STRAMONIUM—*Extract of Stramonium Seeds, P.*—Take of stramonium seeds 1 pound; alcohol 3 pounds. Pass the stramonium seeds through a mill, and digest them in the alcohol with a gentle heat for several hours; strain with pressure; digest the residuum in three fresh pounds of alcohol; strain again; filter the liquors; evaporate them to the consistence of an extract; dissolve this in four times its weight of cold water; and filter and evaporate afresh to the consistence of an extract.

In the same manner prepare the extracts of henbane and deadly nightshade seeds.—*Paris Codex.*

EXTRACTUM STORACIS—*Extract of Styrax, E.*—Take any convenient quantity of storax, in fine powder; exhaust it by boiling it in successive quantities of rectified spirit; filter the spirituous solutions; distil off the greater part of the spirit; evaporate the remainder over the vapour-bath to the consistence of a thin extract.—*Edinburgh.*

"Common storax occurs in brittle, almost turf-like cakes, several pounds in weight, reddish brown in colour, possessing a peculiar balsamic odour like that of vanilla or balsam of Peru, and composed apparently of sawdust cemented by a resinous matter. It acquires, when exposed to the air, a whitish efflorescent fibre of benzoic acid. The cakes may be easily crushed to a coarse powder, in which state storax is commonly met with in retail shops. In consequence of always containing foreign admixtures, it must be purified by preparing from it an alcoholic extract, as the Edinburgh College has directed; and it is well not to carry the concentration too far, because in this way the fragrant principle is better retained, and the extract is obtained in a fitter state for making pills. Storax consists of a trace of volatile oil, a little gum, some extractive matter, much woody fibre, with from 33 to 54 per cent. of resin, and from 1 to 2.6 per cent. of benzoic acid."—CHRISTISON.

EXTRAIT DE SCILLE—*Extract of Squill, P.*—Take of dried squill 1 pound; alcohol, sp. gr. 920, 4 pounds. Macerate for several days; strain with pressure, and filter; macerate the residue again in three pounds of similar alcohol for two or three days, and strain again with pressure; mix the tinctures; distil off all the rectified spirit, and evaporate to the consistence of an extract.

In the same manner prepare the extracts of colocynth, saffron, myrrh, and nux vomica, using, for this last, alcohol of sp. gr. 860.—*Paris Codex.*

"Squill yields its properties to water, spirit, and diluted acids; and its best solvents are proof spirit and vinegar. The aqueous infusion is rendered deep purple by the sesquioxide salts of iron, and is not affected by tincture of iodine and tincture of galls."

EXTRACTUM TARAXACI—*Extract of Dandelion, L. and D.*—Take of dandelion-root, fresh, bruised, 2½ pounds; distilled water, boiling, 2 gallons. Macerate for twenty-four hours; then boil down to a gallon, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London and Dublin.*

EXTRACTUM TARAXACI—*Extract of Dandelion, E.*—Take of fresh root of taraxacum a pound; boiling water a gallon. Proceed as for the preparation of extract of poppyheads.—*Edinburgh.*

EXTRACTUM TARAXACI—*Extract of Dandelion, U.S.*—Prepared in the same manner as extract of gentian, U.S., from fresh dandelion-root.—*United States.*

Extract of dandelion should on no account be made with boiling water, as directed by the London, Edinburgh, and Dublin Pharmacopœias, for the nature of the root is thereby materially altered, and the extract, instead of possessing flavour and virtue, is sweet and ineffective. The fresh root should be well washed, bruised, or crushed, and diluted with a little cold water; the juice obtained by strong pressure should be coagulated and filtered, to separate the albumen, and then evaporated in vacuo. By these means a superior preparation is obtained, firm and transparent, with the flavour of the root very strong.

November is the proper time for using the root; it yields about twenty per cent. of extract when prepared as an inspissated juice, and about seven more when made officinally; the juice contains, according to John. caoutchouc, bitter matter, traces of resin, sugar, and gum, free acids, phosphates, sulphates, and the chlorides of potassium and calcium; and the root contains twelve per cent. of inulin; water dissolves out its bitter ingredient, and the caoutchouc separates by coagulation. A very elegant preparation has been introduced under the title of "Liquor Taraxaci," and which, from the strong taste it possesses of the recent root, has been much used by medical men who have confidence in the remedial powers of dandelion. The following is the formula:—

Dandelion-roots, perfectly clean, dry, and in coarse powder, 18 ounces. Infuse for twenty-four hours in a sufficient quantity of cold distilled water to cover them. Press, and set aside, that the fecula may subside; decant, and heat the clear liquor to 180° F., so as to coagulate the albumen; filter the liquor whilst hot, and evaporate in a drying-room, or by means of a current of warm air (a water or steam bath will not succeed so well), until the product shall weigh 14 ounces. To this must be added 4 ounces of rectified spirit. Should the roots not have been perfectly cleansed, the product must be digested with pure animal charcoal. If properly prepared, liq. taraxaci resembles in colour pale sherry, and possesses the taste of the root in an eminent degree. The dose is from one to three fluidrachms.

Taraxacum-root, dried and roasted, is now sold under the name of dandelion coffee, and is said to be a pleasant way of administering the remedy.

EXTRACTUM UVÆ URSI—*Extract of Whortleberry, L.*—Take of whortleberry, bruised, 2½ pounds; distilled water, boiling, 2 gallons. Macerate for twenty-four hours; then boil down to a gallon, and strain the liquor while hot; lastly, evaporate to a proper consistence.—*London.*

Whortleberry leaf readily parts with its astringency to water and rectified spirit. Its watery infusion gives a copious bluish black precipitate with the sesquioxide salts of iron.

By the term extract is meant merely the whole of the soluble matters obtained from vegetables, reduced by careful evaporation to either a pasty or solid consistence. The watery extracts, which are those most commonly made, are as various as the vegetables which yield them; some containing chiefly sugar or gum in great abundance, and are, therefore, innocent or inert, while others contain very energetic impregnations. The conduct of the evaporating heat is the capital point in the preparation of extracts. They should always be prepared, if possible, from the juice of the fresh plant, by subjecting its leaves, or other succulent part, to the action of a powerful screw or hydraulic press; and the evaporation should be conducted by the warmth of a water-bath, heated not beyond 100° or 120° F. Steam heat may, perhaps, be applied advantageously in some cases, where it is not likely to decompose any of the principles of the plant. But by far the best process for making extracts is *in vacuo*.—DR. URE.

ENEMAS.

ENEMA ALOËS—*Enema of Aloes, L.*—Take of aloes 2 scruples; carbonate of potash 15 grains; decoction of barley half a pint. Mix, and rub them together.—*London.*

ENEMA CATHARTICUM—*Purging Enema, E.*—Take of olive oil 1 ounce; sulphate of magnesia half an ounce; sugar 1 ounce; senna half an ounce; boiling water 16 fluid ounces. Infuse the senna for an hour in the water; then dissolve the salt and sugar; add the oil, and mix them by agitation.—*Edinburgh.*

ENEMA CATHARTICUM—*Purging Clyster, D.*—Take of manna an ounce; dissolve it in compound decoction of chamomile 10 fluid ounces; then add of olive oil an ounce; sulphate of magnesia half an ounce. Mix them.—*Dublin.*

ENEMA COLOCYNTHIDIS—*Enema of Colocynth, L.*—Take of compound extract of colocynth 2 scruples; soft soap an ounce; water a pint. Mix, and rub them together.—*London.*

ENEMA FŒTIDUM—*Fœtid Enema, E. and D.*—Add to the cathartic enema 2 drachms of tincture of asafœtida.—*Edinburgh and Dublin.*

ENEMA OPII—*Enema of Opium, L.*—Take of decoction of starch 4 fluid ounces; tincture of opium 30 minims. Mix.—*London.*

ENEMA OPII VEL ANODYNUM—*Opium or Anodyne Enema, E.*—Take of starch half a drachm; tincture of opium half a fluidrachm to 1 fluidrachm; water 2 fluid ounces. Boil the starch in the water, and, when it is cool enough for use, add the tincture of opium.—*Edinburgh.*

ENEMA OPII—*Clyster of Opium, D.*—Take of opium 1 grain; tepid water 6 ounces. Mix.—*Dublin.*

ENEMA TABACI—*Enema of Tobacco, L.*—Take of tobacco a drachm; water, boiling, a pint. Macerate for an hour, and strain.—*London.*

ENEMA TABACI—*Tobacco Enema, E.*—Take of tobacco 15 grains to half a drachm; boiling water 8 fluid ounces. Infuse for half an hour, and then strain.—*Edinburgh.*

The active principle of tobacco is called nicotina; and its properties are stated to be as follows:—It is liquid, colourless, with an acrid smell and taste; it does not become solid even at 20° F. It mixes in all proportions with water, from which ether separates the greater part and dissolves it; it is soluble also in alcohol, oil of almonds, and, but very sparingly, in oil of turpentine. It may be slowly distilled at 284°, but at 474° it boils and decomposes. It combines with many acids to form salts, which are mostly soluble in water and in alcohol; the phosphate, oxalate, and tartrate are crystallizable. Nicotina dilates the pupil, and is so poisonous that a single drop is sufficient to kill a dog.—PHILLIPS.

ENEMA TEREBINTHINÆ—*Enema of Turpentine, L. and E.*—Take of oil of turpentine a fluid ounce; yolk of egg as much as may be sufficient; rub them together, and add decoction of barley 19 fluid ounces. Mix.—*London and Edinburgh.*

ENEMA TEREBINTHINÆ—*Turpentine Enema, D.*—Take of common turpentine half an ounce; the yolk of one egg. Rub them together, and add gradually water, of a temperature not exceeding 100°, 10 ounces.—*Dublin.*

ELECTUARIES.

THÉRIAQUE—*Theriaca, P.*—Take of sweet flag 24 parts; ginger 24 parts; orris 48 parts; tormentil 24 parts; rhubarb 24 parts; valerian 16 parts; spikenard 16 parts; gentian 16 parts; round aristolochia 8 parts; asarabacca 8 parts; lemon grass 24 parts; wood of aloes 8 parts; cinnamon bark 48 parts; cassia bark 32 parts; lemon peel 24 parts; squill 48 parts; water germander tops 48 parts; horehound tops 48 parts; wall germander tops 16 parts; ground pine tops 16 parts; calamint tops 24 parts; pennyroyal tops 16 parts; cat-thyme tops 8 parts; origanum 24 parts; centaury 8 parts; lavender 24 parts; red rose 48 parts; saffron 32 parts; aniseed 16 parts; fennel seed 16 parts; carrot 8 parts; French hartwort 16 parts; parsley 24 parts; cardamoms in clusters 32 parts; cardamom seeds 16 parts; black pepper 24 parts; white pepper 24 parts; long pepper 96 parts; seeds of bitter vetch 144 parts; agaric 48 parts; castor 8 parts; opium 96 parts; liquorice juice 48 parts; gum acacia 16 parts; dried bread crumb 48 parts; galbanum 8 parts; myrrh 32 parts; olibanum 24 parts; opopanax 8 parts; sagapœnum 16 parts; styrax 16 parts; asphaltum 8 parts; Lemnian earth 16 parts; exsiccated sulphate of iron 16 parts; balsam of Mecca 48 parts; Chio turpentine 24 parts; honey three times the weight of the whole of the powders. Make a compound powder with all the ingredients (except the two turpentines, honey, and wine); this forms the Theriaca powder; melt the balsam of Mecca and Chio turpentine with a gentle heat, and stir in sufficient powder to divide them; then dilute this by adding by degrees the honey, previously made hot; add then, by little at a time, the rest of the powders, and sufficient Spanish wine to make the mass of a soft consistence; when the mixture is homogeneous, preserve it in a pot.

Seventy-two grains of Theriaca contain one grain of opium, which is equal to half a grain of extract of opium.—*Paris Codex.*

Electuaire Diascordium—*Diascordium, P.*—Take of dried leaves of water germander 48 parts; red rose 16 parts; bistort-root 16 parts; gentian-root 16 parts; tormentil-root 16 parts; barberry seeds 16 parts; ginger 8 parts; long pepper 8 parts; cassia 16 parts; cinnamon 16 parts; thyme 16 parts; styrax 16 parts; galbanum 16 parts; gum arabic 16 parts; prepared Armenien bole 64 parts; extract of opium 8 parts; honey of rose, purified, and brought to the consistence of ordinary honey, 1,000 parts; Spanish wine 250 parts. Dissolve the extract of opium in the wine; then add the honey, and, by degrees, all the other ingredients, previously reduced to a very fine powder; mix exactly, and preserve in a pot for use. The proportion of opium in this preparation is very small, about the same as in Theriaca, that is to say, about one half grain of extract of opium in seventy-two.—*Paris Codex.*

Electuaire Catholicum—*Catholicon, P.*—Take of polypody-root 250 parts; chicory 64 parts; liquorice-root 32 parts; leaves of liverwort 96 parts; leaves of hart's-tongue 96 parts; fennel seeds 48 parts; sugar 2,000 parts; tamarind pulp 125 parts; cassia pulp 125 parts; powdered rhubarb 125 parts; powdered senna 125 parts; powdered liquorice 125 parts; powdered violet seeds 64 parts. Boil the leaves and roots over a gentle fire in 3,000 parts of water until it is reduced one third; then add the fennel seeds, and infuse for one hour; strain with pressure; add the sugar to the clear liquor, and boil to the consistence of a syrup; remove from the fire, and add, first the pulps of cassia and tamarinds, and then the other ingredients finely powdered; mix intimately, and preserve in a closely-covered pot. —*Paris Codex.*

Electuaire Lénitif—*Lenitive Electuary, P.*—Take of barley 64 parts; polypody-root 64 parts; liquorice-root 32 parts; fresh leaves of scolopendra 48 parts; raisins 64 parts; prunes 48 parts; jujube 48 parts; tamarinds 64 parts; senna leaves 64 parts; sugar 1,250 parts; tamarind pulp 192 parts; cassia pulp 192 parts; prune pulp 192 parts; powdered senna 160 parts; powdered fennel seed 8 parts; powdered aniseed 8 parts. Boil the barley in water until they burst; then add the polypody, and boil; and, lastly, add the liquorice-root, the scolopendra, and the fruits, and boil; strain with pressure; make, separately, a decoction with the senna leaves, and strain; mix the two decoctions, and evaporate until they are reduced to 2,500 parts; add then the sugar, and make into a syrup, in which mix, first the pulps, and then the powders of senna, fennel, and aniseed.—*Paris Codex.*

Electuaire Diaphœnix—*Diaphœnix, P.*—Take of pulp of dates 250 parts; sweet almonds, blanched, 112 parts; powdered ginger 8 parts; powdered black pepper 8 parts; powdered mace 8 parts; powdered cinnamon 8 parts; powdered saffron 0.3 parts; powdered carrot 8 parts; powdered fennel seed 8 parts; powdered rue 8 parts; powdered jalap 125 parts; powdered Aleppo scammony 48 parts; powdered sugar 250 parts; honey, despumated, 1,000 parts. Pound the almonds with the sugar until they are reduced to a homogeneous mass; add then by degrees the pulp of dates, then the honey, and lastly incorporate the powders; preserve the electuary in a covered pot in a cool place.—*Paris Codex.*

Electuaire de Quinquina—*Electuary of Cinchona, P.*—Take of powdered crown bark 72 parts; hydrochlorate of ammonia 4 parts; fine honey 64 parts; syrup of wormwood 64 parts. Make an electuary. The cinchona forms a little more than a third of the whole.—*Paris Codex.*

Electuaire Dentifrice—*Dentifrice Electuary, P.*—Take of powdered red coral 125 parts; powdered cuttle-fish 32 parts; bitartrate of potash 64 parts; cochineal 32 parts; alum 2 parts; Narbonne honey 320. Reduce to an impalpable powder, separately, the coral, cuttle-fish, bitartrate of potash, alum, and cochineal. Pound then the alum and cochineal together in a marble mortar with a little water, until the red colour is properly developed; add then, successively, the honey and the other powders; mix intimately, and perfume with an appropriate volatile oil.—*Paris Codex.*

Species.

By the term species is understood a mixture of several plants dried and coarsely powdered, which are used to prepare infusions, decoctions, &c.—*Paris Codex.*

Espèces Emollientes—*Emollient Species, P.*—Take equal parts of the dried leaves of dwarf mallow, marshmallow, great mullein, ragwort, and pellitory. Mix, and preserve for use.—*Paris Codex.*

Espèces Béchiques—*Cough Species, P.*—Take equal parts of the dried flowers of marshmallow, coltsfoot, and red poppy petals. Mix, and preserve for use.—*Paris Codex.*

Espèces Dites Fruits Béchiques—*Pectoral Fruits, P.*—Take equal parts of dates, stoned, jujubes, figs, and raisins. Mix, and preserve for use.—*Paris Codex.*

Espèces Amères—*Bitter Species, P.*—Take equal parts of the dried leaves of wall germander, dried tops of centaury, and wormwood. Mix, and preserve for use.—*Paris Codex.*

Espèces Aromatiques—*Aromatic Species, P.*—Take equal parts of the dried leaves of sage, thyme, wild-thyme, hyssop, marjoram, and wormwood. Mix, and preserve for use.—*Paris Codex.*

Espèces Pectorales—*Pectoral Species, P.*—Take equal parts of the dried leaves of Canadian maidenhair, veronica, hyssop, and ground ivy. Mix, and preserve for use.—*Paris Codex.*

Faltrank—*Faltranc, or Swiss Tea, P.*—Take equal parts of the dried leaves and tops of wormwood, betony, bugle, calamint, wall germander, hyssop, ground ivy, milfoil, marjoram, rosemary, sanicula, sage, scolopendra, water germander, thyme, veronica, flowers of leopard's bane, scabius, and coltsfoot. Mix, and preserve for use.—*Paris Codex.*

Espèces Anthelminthiques—*Anthelmintic Species, P.*—Take equal parts of the dried leaves and flowers of tansy, wormwood, and chamomile. Mix, and preserve for use.—*Paris Codex.*

Espèces Diurétiques—*Diuretic Species, P.*—Take equal parts of the dried roots of sweet fennel, hollyoak, smallage, asparagus, and parsley. Mix, and preserve them for use.—*Paris Codex.*

Espèces Astringentes—*Astringent Species. P.*—Take of the dried roots of bistort, tormentilla, and pomegranate bark. Mix, and preserve for use.—*Paris Codex.*

Espèces Sudorifiques—*Sudorific Species, P.*—Take equal parts of rasped guaiacum, sarsaparilla-root, sliced and cut, and squinant-root, cut in small pieces. Mix, and preserve for use.—*Paris Codex.*

Espèces Dites Quatre Semences Froides—*Cooling Species, P.*—Take equal parts of gourd seeds, water melon seeds, melon seeds, and cucumber seeds. Mix, and preserve for use.—*Paris Codex.*

Oleosaccharums.

The name of oleosaccharum is given to the mixture of an essential oil with sugar.

Elœosaccharum d'Anis—*Oleosaccharum of Anise, P.*—Take of essential oil of anise 1 minim, white sugar 72 grains. Triturate in a marble or glass mortar.—*Paris Codex.*

Elœosaccharum de Citrons—*Oleosaccharum of Lemon, P.*—Take one fresh lemon; white sugar, in small pieces, 3 drachms. Rub the sugar against the lemon, until all the yellow part is detached; then mix well in a mortar.—*Paris Codex.*

Emulsions.

Those preparations are termed emulsions which contain a quantity of oil suspended either by means of albuminous matter or mucilage; they very quickly become bad, and, therefore, small quantities should only be prepared at a time.

Emulsion Simple—*Simple Emulsion, P.*—Take of sweet almonds, blanched, 32 parts; white sugar 32 parts; cold water 1,000 parts. Beat the almonds with a small quantity of the water, in a marble mortar, into a fine paste; to this add the rest of the water, dissolve the sugar, and strain with slight pressure.

In the same manner prepare emulsions with cooling species, hempseed, stone pine, and other oily seeds.—*Paris Codex.*

Emulsion Purgative avec l'Huile de Ricin—*Purgative Emulsion with Castor Oil, P.*—Take of castor oil 32 parts; yelk of one egg; peppermint-water 16 parts; water 64 parts; simple syrup 32 parts. Mix the yelk of the egg with a little water in a marble mortar; add, by small portions at a time, the castor oil, triturating quickly; when it is intimately mixed, add by degrees the rest of the water and the syrup.—*Paris Codex.*

Emulsion Purgative avec la Resine de Jalap—*Purgative Emulsion with Resin of Jalap, P.*—Take of resin of jalap 0.6 parts; white sugar 32 parts; orange flower water 8 parts; water 125 parts; yelk of one egg. Triturate the jalap resin with a small quantity of sugar until it is reduced to very fine powder; add then by degrees the yelk of egg, and triturate until the resin is perfectly divided; then add the rest of the sugar and the water by small portions at a time.—*Paris Codex.*

Emulsion Purgative avec la Scammonée—*Purgative Emulsion with Scammony, P.*—Take of Aleppo scammony 0.6 parts; milk 125 parts; sugar 16 parts; cherry laurel water 8 parts. Triturate the scammony with a little of the milk in a marble mortar, and, when it is well divided, add the rest of the milk, the sugar, and the cherry laurel water.—*Paris Codex.*

> Resin of scammony, which is the active principle, has a dirty, greenish-brown colour, and a feeble scammony odour and taste, if not quite pure; it is very soluble in ether, rectified spirit, and even boiling proof spirit, and its powder readily forms with unskimmed milk a fine, uniform emulsion, undistinguishable by colour, taste, or smell, from milk of rich quality; it makes a very convenient purge.

Escharotics.

Escharotics, which take the name of catheretics when their action is

gentle, are substances which, applied to the human body, disorganize and destroy the parts with which they come in contact. The substances employed as caustics are oxide of copper, oxide of mercury, the mineral acids, the caustic alkalis, chloride of antimony, chloride of zinc, and a concentrated solution of iodine.—*Paris Codex.*

Trochisques Escharotiques—*Sublimate Escharotic, P.*—Take of corrosive sublimate 8 parts; starch 16 parts; mucilage of gum tragacanth Q.S. Very finely powder or porphyrize the sublimate; add the starch, and as much mucilage as will make it into a paste, which form into masses of about three grains each.—*Paris Codex.*

Trochisques Escharotiques de Minium—*Red Lead Escharotic P.*—Take of corrosive sublimate 8 parts; red lead 4 parts; crumb of bread 32 parts; distilled water Q.S. Make into a paste, which divide into masses of three grains each.—*Paris Codex.*

Poudre Escharotique Arsenicale—*Arsenical Escharotic Powder, P.*—Take of sulphuret of mercury 16 parts; powdered dragons'-blood 16 parts; finely powdered white arsenic 8 parts. Mix exactly, and preserve for use. When about to use this powder, it is to be made into a paste by means of a little saliva or gum-water.—*Paris Codex.*

Fomentations.

Fomentation Emolliente—*Emollient Fomentation, P.*—Take of emollient species 1 ounce; water Q.S. Boil during ten minutes, employing sufficient water, that a quart remains; strain with pressure.—*Paris Codex.*

Fomentation de Fleurs de Sureau—*Fomentation of Elder Flowers, P.*—Take of elder flowers 10 parts; boiling water 1,000 parts. Infuse during one hour, and strain.—*Paris Codex.*

Fomentation Narcotique—*Narcotic Fomentation, P.*—Take of narcotic species 32 parts; boiling water 1,000 parts. Infuse during one hour, and strain.—*Paris Codex.*

Fomentation Vineuse—*Wine Fomentation, P.*—Take of red wine 1,000 parts; honey 125 parts. Dissolve.—*Paris Codex.*

Fomentation avec la Vinaigre—*Vinegar Fomentation, P.*—Take of white vinegar 250 parts; cold water 1,000 parts. Mix.—*Paris Codex.*

Fumigations.

Water and alcohol, pure, or charged with aromatics, ether, or the ethereal solutions, sulphur, cinnabar, sulphurous acid, chlorine, sugar, amber, resins, juniper berries, &c., are generally the elements of ordinary fumigations.—*Paris Codex.*

Fumigation d'Acide Nitrique—*Nitric Acid Fumigation, P.*—Take of sulphuric acid, sp. gr. 1.847, 64 parts; water 32 parts; powdered purified nitre 64 parts. Mix the acid and water together in an earthen vessel; place this on hot cinders, or in a sandbath moderately heated. Add to this the saltpetre in small portions at a time, taking care not to add a second quantity until the first is entirely decomposed, and disengages no more vapours.—*Paris Codex.*

Fumigation Guytonnienne—*Chlorine Fumigation, P.*—Take of chloride of sodium, in powder, 300 parts; binoxide of manganese 100 parts; sulphuric acid, sp. gr. 1.847, 200 parts; water 200 parts. Mix the chloride of sodium, manganese, and water in a glass or earthen vessel, and then add the sulphuric acid. Greenish yellow vapours are plentifully disengaged.—*Paris Codex.*

> "In this process chloride of sodium is decomposed; the binoxide of manganese parts with one atom of its oxygen to convert the sodium into soda; the soda and protoxide of manganese unite with sulphuric acid; and the chlorine set free is disengaged in the form of a gas."

Clous Fumans-Pastils, *P.*—Take of benzoin 64 parts; balsam of tolu 16 parts; labdanum 4 parts; santal wood 16 parts; wood charcoal 192 parts; nitrate of potash 8 parts; mucilage of gum tragaganth Q.S. Reduce all the substances to powder, and make into a firm paste with the mucilage; divide into small cones.—*Paris Codex.*

Gargles.

Gargarisme Détersif—*Detersive Gargle, P.*—Take of honey of roses 64 parts; sulphuric alcohol 2 parts; decoction of barley 250 parts. Mix.—*Paris Codex.*

Gargarisme Antiscorbutique—*Antiscorbutic Gargle, P.*—Take of bitter species 4 parts; boiling water 250 parts; syrup of honey 64 parts; antiscorbutic tincture 32 parts. Infuse the species in the water for an hour; strain; add the honey and the tincture.—*Paris Codex.*

Jellies.

Gelée de Corne de Cerf—*Hartshorn Jelly, P.*—Take of hartshorn rasped and washed with warm water 250 parts; water 2,000 parts; white sugar 125 parts; one lemon. Gently boil the hartshorn with the water in a covered vessel until it is reduced to one half; strain with strong pressure; add the sugar, the juice of the lemon, and the white of an egg beaten up with a little water; clarify by heat, and concentrate until the liquor acquires the consistence of a jelly on cooling; add then the lemon peel, cut into fine pieces; after a short time strain through a sieve, receive the liquor in a china pot, and put aside in a cool place.—*Paris Codex.*

Gelée de Lichen d'Islande—*Iceland Moss Jelly, P.*—Take of Iceland moss 64 parts; sugar 125 parts; isinglass 4 parts. Heat the moss with sufficient water, and boil during one hour, that a concentrated solution may be obtained; strain with pressure; let the liquor deposit, and decant; replace on the fire; add the sugar, and the isinglass previously softened by maceration in 2 ounces of cold water; stir continually until the liquor begins to boil; allow it then to simmer till it is sufficiently concentrated to form a jelly on cooling; skim off the pellicle which forms, and put into pots. Sometimes this jelly is required to be deprived of its bitter principle; to effect this the lichen must be steeped in cold water for three days, changing the water every six hours.—*Paris Codex.*

Gelée de Lichen au Quinquina—*Jelly of Iceland Moss with Cinchona, P.*—Take of Iceland moss 64 parts; syrup of cinchona 192 parts; isinglass 4 parts. Prepare in the same manner as the last.—*Paris Codex.*

Gelée de Lichen Desséchée—*Dried Jelly of Iceland Moss, P.*—Take of Iceland moss 500 parts; white sugar 500 parts. Deprive the moss of its bitter principle; boil in water for one hour; strain with pressure; add the sugar, and evaporate in a large flat pan, stirring continually until it is of a very firm consistence; spread this over plates; complete the desiccation over the stove; reduce the product to fine powder, and preserve in well-stopped bottles.—*Paris Codex.*

Gelée de Mousse de Corse—*Jelly of Corsican Moss, P.*—Take of Corsican moss 32 parts; white sugar 64 parts; white wine 64 parts; isinglass 4 parts. Boil the Iceland moss for an hour in a sufficient quantity of water to obtain about 120 parts of liquor; strain with pressure; add the sugar, white wine, and the isinglass previously softened by maceration in an ounce of water, and boil to the consistence of a jelly; strain through a sieve.—*Paris Codex.*

Infusions.

Few forms are more convenient for the administration of medicines from the vegetable world than that of infusion. The greater number of vegetable drugs are easily exhausted of their active parts in this way; the process is exceedingly simple and speedy, more especially as it is seldom necessary that the solid materials be in a state of fine division; and the form in which the active constituents are presented is one of the best for administration. The chief objection to infusions is, that they cannot be long kept, unless in a concentrated form.

> Infusions are generally made in this country with boiling water, which is poured on the materials in a lightly-covered vessel, and either allowed to cool, or kept for some hours at a low heat beside a fire, and then strained. Boiling water has the frequent disadvantage of dissolving, along with the active ingredients of vegetables, starch and other principles, whose presence renders the infusions more apt to become acid or mouldy; and it favours certain reactions between the proximate principles of plants, by which active principles are either converted into insoluble compounds, or changed altogether in constitution. Percolation or maceration with cold water has the advantage of avoiding these inconveniences, besides that cold infusions have less tendency to become foul and useless than those made at a boiling temperature; most of the infusions can be prepared cold, and it is only necessary to digest them for a longer period to obtain them properly strong and efficacious.—Christison.

Infusum Anthemidis—*Infusion of Chamomile, L., E., and D.*—Take of chamomile 5 drachms; distilled water, boiling, a pint. Macerate for ten or twenty minutes in a lightly-covered vessel, and then strain.—*London, Edinburgh, and Dublin.*

Infusum Anthemidis—*Infusion of Chamomile, U.S.*—Take of chamomile half an ounce; boiling water a pint. Macerate for ten minutes in a covered vessel, and strain.—*United States.*

> This infusion is clear, of a pale yellow colour, and has the odour and taste of the flowers. It precipitates solution of isinglass whitish; infusion of yellow cinchona bark, white; solution of sulphate of iron and tincture of sesquichloride of iron, black; solution of nitrate of silver, white; of bichloride of mercury, pale brown; and of acetate and diacetate of lead, yellowish white. These substances, therefore, are incompatible with this infusion.—Thomson.
>
> This infusion can be prepared equally well with cold water, allowing it to digest for one hour or more.

Infusum Armoraciæ Compositum — *Compound Infusion of Horseradish, L. and D.*—Take of horseradish, sliced, mustard, bruised, each an ounce; compound spirit of horseradish a fluid ounce; distilled water, boiling, a pint. Macerate the root and the seeds in the water for two hours in a vessel lightly covered, and strain; then add the compound spirit of horseradish.—*London and Dublin.*

Infusum Armoraciæ—*Infusion of Horseradish, U.S.*—Take of horseradish, sliced, mustard, bruised, each an ounce; distilled water a

pint. Macerate for two hours in a covered vessel, and strain.—*United States.*

This infusion, after it is strained, deposits, by rest, a whitish feculent matter, which should be separated; the supernatant clear part is of a sulphur-yellow colour, and holds dissolved in every fluid ounce rather more than 10 grains of solid matter. It has a very pungent odour, and a hot biting taste; precipitates infusion of galls yellowish; and infusion of yellow cinchona, white; it is also incompatible with solutions of the salts of silver and mercury, and of the alkaline carbonates. It very quickly spoils in summer, and emits an offensive odour.

INFUSUM AURANTII COMPOSITUM—*Compound Infusion of Orange Peel, L. and D.*—Take of orange peel, dried, half an ounce; lemon peel, fresh, 2 drachms; cloves, bruised, 1 drachm; distilled water, boiling, a pint. Macerate for a quarter of an hour in a vessel lightly covered, and strain.—*London and Dublin.*

INFUSUM AURANTII—*Infusion of Orange Peel, E.*—Take of bitter orange peel, dried, half an ounce; lemon peel, fresh, 2 drachms; cloves, bruised, 1 drachm; boiling water 1 pint. Infuse for fifteen minutes in a covered vessel, and strain through linen or calico.—*Edinburgh.*

This infusion has an agreeable aromatic odour and taste. It is clear, and has the colour of sherry wine. It is incompatible with sulphate of iron, acetate and diacetate of lead, and lime-water.

INFUSUM CALUMBÆ—*Infusion of Calumba, L. and D.*—Take of calumba, sliced, 5 drachms; distilled water, boiling a pint. Macerate for two hours in a vessel lightly covered, and strain.—*London and Dublin.*

INFUSUM CALUMBÆ—*Infusion of Calumba, E.*—Take of calumba, in coarse powder, half an ounce; cold water about a pint. Triturate the calumba with a little of the water, so as to moisten it thoroughly; put it into a percolator, and transmit cold water till 16 fluid ounces of infusion be obtained.—*Edinburgh.*

INFUSUM COLOMBO—*Infusion of Colombo, U.S.*—Take of colombo, bruised, half an ounce; boiling water a pint. Macerate for two hours in a covered vessel, and strain.—*United States.*

Cold water removes all the bitter principle of calumba root, and boiling water dissolves also some starch. The infusion, therefore, should be made with cold water, as directed by the Edinburgh Pharmacopœia. It is inodorous and tastes bitter. It is incompatible with solutions of the acetates of lead, bichloride of mercury, lime-water, and infusion of yellow cinchona. This solution soon spoils, but keeps longer when prepared cold.

INFUSUM CARYOPHYLLI—*Infusiou of Cloves, L., E., and D.*—Take of cloves, bruised, 3 drachms; distilled water, boiling, a pint. Macerate for two hours in a vessel lightly covered, and strain.—*London, Edinburgh, and Dublin.*

INFUSUM CARYOPHYLLI—*Infusion of Cloves, U.S.*—Take of cloves, bruised, 2 drachms; boiling water a pint. Macerate for two hours in a covered vessel, and strain.—*United States.*

This infusion possesses the odour, taste, and active matter of the cloves; one fluid ounce holding nearly six grains in solution. It is of a light brown colour; and incompatible with lime-water, solutions of the salts of iron, zinc, lead, silver, antimony, the infusion of yellow cinchona, and with the strong acids.

INFUSUM CASCARILLÆ—*Infusion of Cascarilla, L., E., and D.*—Take of cascarilla, bruised, an ounce and a half; distilled water, boiling, a pint. Macerate for two hours in a vessel lightly covered, and strain.—*London, Edinburgh, and Dublin.*

INFUSUM CASCARILLÆ—*Infusion of Cascarilla, U.S.*—Take of cascarilla, bruised, an ounce; boiling water a pint. Macerate for two hours in a covered vessel, and strain.—*United States.*

Water readily extracts the active ingredients of cascarilla. This infusion has a pale brown colour, and an aromatic, bitterish, taste. It is incompatible with lime-water, infusion of galls, infusion of yellow cinchona bark, solutions of the salts of iron, zinc, lead, and antimony.

This infusion can be made equally well with cold water.

INFUSUM CATECHU COMPOSITUM—*Compound Infusion of Catechu, L. and D.*—Take of extract of catechu, powdered, 6 drachms; cinnamon, bruised, a drachm; distilled water, boiling, a pint. Macerate for an hour in a vessel lightly covered, and strain.—*London and Dublin.*

INFUSUM CATECHU—*Infusion of Catechu, E.*—Take of catechu, in powder, 6 drachms; cinnamon, in powder, 1 drachm; syrup 3 fluid ounces; boiling water 17 fluid ounces. Infuse the catechu and cinnamon with the water for two hours, strain through linen or calico, and add the syrup.—*Edinburgh.*

INFUSUM CATECHU COMPOSITUM—*Compound Infusion of Catechu, U.S.*—Take of catechu, in powder, half an ounce; cinnamon, bruised, a drachm; boiling water a pint. Macerate for an hour in a covered vessel, and strain.—*United States.*

In these formulæ it is intended that the whole of the soluble matter in the catechu taken up by the boiling water should remain dissolved after the infusion cools; but a considerable portion is deposited. When the extract is triturated with water at 212°, as much of it is dissolved as the water can hold in solution, so that a preparation similar to this infusion may be immediately made by simply triturating the materials together. The syrup ordered by the Edinburgh College prevents the preparation from keeping longer than two or three days, although without the syrup it will keep good for months.

This infusion is inodorous, has a slightly bitter, austere taste, and leaves, even when it contains no syrup, an agreeable sweetness in the mouth. The colour, when the pale catechu is used, is a light brown, but, when the dark catechu is employed, a deep red brown. It is incompatible with the following substances, which either precipitate its tannin or otherwise alter its properties, namely, solution of isinglass, infusion of yellow cinchona, the strong acids, salts of iron and zinc, bichloride of mercury, tartar emetic, and acetate and diacetate of lead. The alkalis deepen the colour, and destroy its astringency. THOMSON.

INFUSUM CHIRETTÆ—*Infusion of Chiraita, E.*—Take of chiraita 4 drachms; boiling water 1 pint. Infuse for two hours, and strain through linen or calico.—*Edinburgh.*

Chiraita readily imparts its bitterness to both hot and cold water; the infusion is very bitter, and almost colourless. It is incompatible with solution of diacetate of lead, sulphate of iron, and analogous salts.

INFUSUM CINCHONÆ—*Infusion of Cinchona, L.*—Take of lance-leaved cinchona, bruised, an ounce; distilled water, boiling, a pint. Macerate for six hours in a vessel lightly covered, and strain.—*London.*

INFUSUM CINCHONÆ—*Infusion of Cinchona, E.*—Take of any species of cinchona, according to prescription, 1 ounce, in powder; boiling water a pint. Infuse for four hours in a covered vessel, and then strain through linen or calico.—*Edinburgh.*

INFUSUM CINCHONÆ—*Infusion of Cinchona, D.*—Take of lance-leaved cinchona, bruised, an ounce; boiling distilled water a pint. Triturate the bark with a little of the water, and add the remainder during the trituration. Macerate for twenty-four hours, with frequent agitation, and decant the pure liquor.—*Dublin.*

INFUSUM CINCHONÆ—*Infusion of Peruvian Bark, U.S.*—Take of Peruvian bark, bruised, an ounce; boiling water a pint. Macerate for two hours in a covered vessel, and strain. This infusion may also be prepared from the same quantity of bark, in coarse powder, in the following manner:—Having moistened the bark thoroughly with water, introduce it into an aparatus for displacement, press it slightly, and pour water upon its surface, so as to keep it covered. So long as the liquid passes turbid return it into the apparatus; then allow the filtration to continue until one pint of clear infusion is obtained.—*United States.*

INFUSUM CINCHONÆ COMPOSITUM—*Compound Infusion of Peruvian Bark, U.S.*—Take of Peruvian bark, in coarse powder, an ounce; aromatic sulphuric acid a fluidrachm; water a pint. Macerate for twelve hours, occasionally shaking, and strain.—*United States.*

Infusion of cinchona contains a portion of cinchonia, is slightly turbid, has a pale, pinkish yellow colour, evolves more of the aromatic odour of the bark than the decoction, and has an equal degree of bitterness and astringency. When the water is acidulated, as ordered by the United States' Pharmacopœia, its strength is greatly increased, and it is more active in its effects. It is incompatible with lime-water, the alkaline carbonates, the salts of iron, zinc, silver, mercury, arsenious acid, acetate and diacetate of lead, and tartar emetic; the aqueous infusions and decoctions of chamomile flowers, calumba, cascarillæ, horseradish, cloves, catechu, orange peel, foxglove, senna, rhubarb, valerian, simarouba, and elm bark.

INFUSUM CUSPARIÆ—*Infusion of Cusparia, L. and E.*—Take of cusparia, bruised, 5 drachms; distilled water, boiling, a pint. Macerate for two hours in a vessel lightly covered, and strain.—*London and Edinburgh.*

INFUSUM ANGUSTURA—*Infusion of Angustura Bark, U.S.*—Take of angustura bark, bruised, half an ounce; boiling water a pint. Macerate for two hours in a covered vessel, and strain.—*United States.*

This infusion is slightly turbid; of a brownish colour; and has a somewhat aromatic, hot, and not unpleasant bitter taste. It is incompatible with the salts of iron, copper, zinc, silver, mercury, acetate and diacetate of lead, tartar emetic, and infusion of galls.

This infusion is best prepared with boiling water, as *cusparin*, the active principle, dissolves far more freely in hot than in cold water.

INFUSUM DIGITALIS—*Infusion of Foxglove, L. and D.*—Take of foxglove leaves, dried, a drachm; spirit of cinnamon a fluid ounce; distilled water, boiling, a pint. Macerate the foxglove leaves in the water for four hours in a vessel lightly covered, and strain; then add the spirit.—*London and Dublin.*

INFUSUM DIGITALIS—*Infusion of Foxglove, E.*—Take of digitalis, dried, 2 drachms; spirit of cinnamon 2 fluid ounces; boiling water 18 fluid ounces. Infuse the digitalis in the water in a covered vessel for four hours; strain through linen or calico, and then add the spirit of cinnamon.—*Edinburgh.*

INFUSUM DIGITALIS—*Infusion of Foxglove, U.S.*—Take of foxglove a drachm; boiling water half a pint; tincture of cinnamon a fluid ounce. Macerate the foxglove with the water for four hours in a covered vessel, and strain; then add the tincture of cinnamon.—*United States.*

The disagreeable odour and taste of the foxglove are covered by the cinnamon. This infusion is rendered dark greenish-black by solution of sesquichloride of iron, and yields a grey precipitate with tincture of galls. The solution of sulphate of iron slowly throws down a pale olive precipitate; acetate and diacetate of lead, and infusion or decoction of yellow cinchona bark, produce instantaneous and copious precipitates.

INFUSUM DIOSMÆ—*Infusion of Buchu, L.*—Take of buchu an ounce; distilled water, boiling, a pint. Macerate for four hours in a vessel lightly covered, and strain.—*London.*

INFUSUM BUCKU—*Infusion of Buchu, E.*—The same as the London College.—*Edinburgh.*

INFUSUM BUCHU—*Infusion of Buchu, D.*—Take of the leaves of the diosma crenata half an ounce; boiling water half a pint. Digest for four hours, and strain through a linen rag.—*Dublin.*

INFUSUM DIOSMÆ—*Infusion of Buchu, U.S.*—The same as the London College.—*United States.*

This infusion is warm and aromatic, without bitter, owing to the quantity of volatile oil.

INFUSUM EUPATORII—*Infusion of Thoroughwort, U.S.*—Take of thoroughwort an ounce; boiling water a pint. Macerate for two hours in a covered vessel, and strain.—*United States.*

INFUSUM GENTIANÆ COMPOSITUM—*Compound Infusion of Gentian, L.*—Take of gentian, sliced, orange peel, dried, each 2 drachms; lemon peel, fresh, 4 drachms; distilled water, boiling, a pint. Macerate for an hour in a vessel lightly covered, and strain.—*London.*

INFUSUM GENTIANÆ—*Infusion of Gentian, E.*—Take of gentian, sliced, half an ounce; bitter orange peel, dried and bruised, 1 drachm; coriander, bruised, 1 drachm; proof spirit 4 fluid ounces; cold water 16 fluid ounces. Pour the spirit upon the solids; in three hours add the water; and in twelve hours more strain through linen or calico.—*Edinburgh.*

INFUSUM GENTIANÆ COMPOSITUM—*Compound Infusion of Gentian, D.*—Take of gentian-root, bruised, 2 drachms; fresh lemon peel half an ounce; dried orange peel a drachm and a half; proof spirit 4 ounces by measure; boiling water 12 ounces by measure. First pour on the spirit, and, three hours afterwards, the water; then macerate for the space of two days, and strain.—*Dublin.*

INFUSUM GENTIANÆ COMPOSITUM — *Compound Infusion of Gentian, U.S.*—Take of gentian, bruised, half an ounce; orange peel, bruised, coriander, bruised, each a drachm; diluted alcohol 4 fluid ounces; water 12 fluid ounces. First pour on the alcohol, and, three hours afterwards, the water; then macerate for twelve hours, and strain.—*United States.*

This infusion has a pleasant bitter taste, and the agreeable odour of the orange peel. Gentian-root yields its bitter readily to cold water, and the infusion can be well prepared as directed by the Edinburgh and United States Pharmacopœias. It is incompatible with solution of diacetate of lead, sulphate of iron, and analogous salts.

INFUSUM KRAMERIÆ—*Infusion of Rhatany, L.*—Take of rhatany an ounce; distilled water, boiling, a pint. Macerate for four hours in a vessel lightly covered, and strain.—*London.*

INFUSUM KRAMERIÆ—*Infusion of Rhatany, U.S.*—The same as above.—*United States.*

This infusion contains a large quantity of tannin or tannic acid, and is incompatible with metallic salts, with the stronger acids, lime-water, &c.

INFUSUM LINI COMPOSITUM—*Compound Infusion of Linseed, L. and D.*—Take of linseed, bruised, 6 drachms; liquorice, sliced, 2 drachms; distilled water, boiling, a pint. Macerate for four hours, near the fire, in a vessel lightly covered, and strain.—*London and Dublin.*

INFUSUM LINI—*Infusion of Linseed, E.*—Take of linseed 6 drachms; liquorice-root, bruised, 2 drachms; boiling water 1 pint. Digest near the fire in a covered vessel for four hours, and then strain through linen or calico.—*Edinburgh.*

INFUSUM LINI—*Infusion of Flaxseed, U.S.*—Take of flaxseed half an ounce; liquorice-root, bruised, 2 drachms; boiling water a pint. Macerate for four hours in a covered vessel, and strain.—*United States.*

This infusion is a solution of mucous nearly in its pure state; clear, colourless, inodorous, and nearly insipid. Alcohol precipitates the mucous in white floculi; and precipitates are also produced by diacetate and acetate of lead, and tincture of the sesquichloride of iron; thence these substances are incompatible with this infusion.—THOMSON.

INFUSUM LUPULI—*Infusion of Hop, L.*—Take of hops 6 drachms; distilled water, boiling, a pint. Macerate for four hours in a vessel lightly covered, and strain.—*London.*

INFUSUM HUMULI—*Infusion of Hops, U.S.*—Take of hops half an ounce; boiling water a pint. Macerate for two hours in a covered vessel, and strain.—*United States.*

This infusion is acidulous to litmus paper; it acquires a deep green colour with the salts of iron, and becomes turbid with solution of isinglass; it has slightly the aroma of the hop.

INFUSUM MENTHÆ SIMPLEX—*Simple Infusion of Mint, D.*—Take of dry leaves of mint 2 drachms; boiling water a sufficient quantity to leave six fluid ounces of the infusion.—*Dublin.*

INFUSUM MENTHÆ COMPOSITUM—*Compound Infusion of Mint, D.*—Take of the leaves of spearmint, dried, 2 drachms; boiling water a sufficient quantity to afford 6 ounces by measure when strained. Digest for half an hour in a covered vessel, and strain the liquor when cold; then add of refined sugar 2 drachms; oil of spearmint 3 drops, dissolved in half a fluid ounce of compound tincture of cardamoms. Let them be mixed.—*Dublin.*

INFUSUM PAREIRA—*Infusion of Pareira, L. and E.*—Take of pareira 6 drachms; distilled water, boiling, a pint. Macerate for two hours in a vessel lightly covered, and strain.—*London and Edinburgh.*

Pareira readily imparts its virtues to water; the infusion has an aromatic, bitter taste. It is best made with cold water, as the useless starch of the root then remains undissolved, and the preparation is equally effective.

INFUSUM PRUNI VIRGINIANÆ—*Infusion of Wild Cherry Bark, U.S.*—Take of wild cherry bark, bruised, half an ounce; water a pint. Macerate for twenty-four hours, and strain.—*United States.*

INFUSUM QUASSIÆ—*Infusion of Quassia, L. and D.*—Take of quassia, sliced, 2 scruples; distilled water, boiling, a pint. Macerate for two hours in a vessel lightly covered, and strain.—*London and Dublin.*

INFUSUM QUASSIÆ—*Infusion of Quassia, E.*—Take of quassia, in chips, 1 drachm; boiling water a pint. Infuse for two hours in a covered vessel, and then strain through linen or calico.—*Edinburgh.*

INFUSUM QUASSIÆ—*Infusion of Quassia, U.S.*—Take of quassia, rasped, 2 drachms; water a pint. Macerate for twelve hours, and strain.—*United States.*

This infusion contains *quassin*, the active matter of quassia; it can be made as well with cold as with boiling water; infusing a longer time. It is not altered by any of the substances usually prescribed with bitters; and by two only of the metallic salts, nitrate of silver and acetate of lead.

INFUSUM RHEI—*Infusion of Rhubarb, L. and D.*—Take of rhubarb, sliced, 3 drachms; distilled water, boiling, a pint. Macerate for two hours in a vessel lightly covered, and strain.—*London and Dublin.*

INFUSUM RHEI — *Infusion of Rhubarb, E.* — Take of rhubarb, bruised into coarse powder, 1 ounce; spirit of cinnamon 2 fluid ounces; boiling water 18 fluid ounces. Infuse the rhubarb for twelve hours in the water in a covered vessel; add the spirit, and strain through linen or calico.—*Edinburgh.*

INFUSUM RHEI—*Infusion of Rhubarb, U.S.*—Take of rhubarb, bruised, a drachm; boiling water half a pint. Digest for two hours in a covered vessel, and strain.—*United States.*

Boiling water forms with rhubarb a fine orange-coloured solution, the effects of reagents upon which seem to depend on its containing tannin, and a peculiar principle called rhabarberin. Nitric acid causes, with infusion of rhubarb, in twenty parts of water, a dense muddiness, and slowly a yellow precipitate, owing to the separation of rhabarberin; tincture of iodine causes a tawny muddiness, probably for the same reason; solution of potash strikes a fine blood-red colour by combining with the rhabarberin as with an acid; and lime water produces at first a pale cherry-red haze, which slowly gives place to a red precipitate composed of rhabarberin and lime. Sesquichloride of iron produces a green precipitate, and solution of isinglass a yellow curdy deposit, owing to the presence of tannin.—DR. CHRISTISON.

This infusion is best prepared with cold water; when made with boiling water it becomes turbid on cooling, owing to a partial separation of rhabarberin and other principles; precipitation may be prevented in the hot infusion by adding a little spirit, as in the Edinburgh formula.

INFUSUM ROSÆ COMPOSITUM—*Compound Infusion of Rose, L.*—Take of red rose petals, dried, 3 drachms; diluted sulphuric acid a fluidrachm and a half; sugar 6 drachms; boiling distilled water a pint. Pour the water upon the rose petals in a glass vessel, then mix in the acids. Macerate for six hours, then strain the liquor; lastly, add the sugar to it.—*London.*

INFUSUM ROSÆ—*Infusion of Rose, E.*—Take of rosa gallica, dried, 3 drachms; diluted sulphuric acid one fluidrachm and a half; pure sugar 6 drachms; boiling water 1 pint. Infuse the rose petals in the water in a covered vessel of glass or porcelain, not glazed with

lead, for one hour; then add the acid, strain through linen or calico, and dissolve the sugar in the liquor.—*Edinburgh.*

INFUSUM ROSÆ COMPOSITUM—*Compound Infusion of Roses, D.*—Take of the dried red rose 3 drachms; diluted sulphuric acid 3 drachms by weight; boiling distilled water 3 pounds by measure; sugar 6 drachms. Pour the water on the rose petals in a covered glass vessel, and mix in the acid. Macerate for half an hour. Finally, strain the liquor, and add the sugar.—*Dublin.*

INFUSUM ROSÆ COMPOSITUM—*Compound Infusion of Roses, U.S.*—Take of red roses half an ounce; boiling water 2½ pints; diluted sulphuric acid 3 fluidrachms; sugar an ounce and a half. Pour the water upon the roses in a glass vessel; then add the acid, and macerate for half an hour; lastly, strain the liquor, and add the sugar.—*United States.*

This infusion is clear, has a beautiful red colour, and an acid, unpleasant, austere taste. It is incompatible with alkalis and earths, and all substances which combine with sulphuric acid, or are acted upon even by small quantities of it; acetate of lead, of course, throws down a copious precipitate. Sulphate of iron gives it a brown colour, but no precipitate is formed for some hours.—PHILLIPS.

This infusion can be prepared equally well with cold water.

INFUSUM SARSAPARILLÆ COMPOSITUM—*Compound Infusion of Sarsaparilla, D.*—Take of the root of sarsaparilla, first softened in cold water, and then cut, 1 ounce; lime-water 1 pint. Macerate for twelve hours in a close vessel, frequently agitating, and strain.—*Dublin.*

INFUSUM SARSAPARILLÆ—*Infusion of Sarsaparilla, U.S.*—Take of sarsaparilla, bruised, an ounce; boiling water a pint. Digest for two hours in a covered vessel, and strain. This infusion may also be prepared by the process of displacement, in the manner directed for the infusion of peruvian bark.—*United States.*

INFUSUM SCOPARII—*Infusion of Broom, L.*—Take of the fresh tops of broom an ounce; distilled water, boiling, a pint. Macerate for four hours in a vessel lightly covered, and strain.—*London.*

INFUSUM SENNÆ COMPOSITUM—*Compound Infusion of Senna, L.*—Take of senna 15 drachms; ginger, sliced, 4 scruples; distilled water, boiling, a pint. Macerate for an hour in a vessel lightly covered, and strain.—*London.*

INFUSUM SENNÆ—*Infusion of Senna, E.*—Take of senna an ounce and a half; ginger, bruised, 4 scruples; boiling water 1 pint. Infuse for an hour in a covered vessel, and then strain through linen or calico.—*Edinburgh.*

INFUSUM SENNÆ COMPOSITUM—*Compound Infusion of Senna, E.*—Take of senna 1 drachm; tamarinds 1 ounce; coriander, bruised, 1 drachm; muscovado half an ounce; boiling water 8 fluid ounces. Infuse for four hours, with occasional stirring, in a covered vessel, not glazed with lead, and then strain through linen or calico. This infusion may likewise be made with twice or thrice the prescribed quantity of senna.—*Edinburgh.*

INFUSUM SENNÆ COMPOSITUM—*Compound Infusion of Senna, D.*—Take of senna 1 ounce; ginger, sliced, 4 scruples; boiling distilled water a pint. Macerate for an hour in a lightly-covered vessel, and strain.—*Dublin.*

INFUSUM SENNÆ—*Infusion of Senna, U.S.*—Take of senna an ounce; coriander, bruised, a drachm; boiling water a pint. Macerate for an hour in a covered vessel, and strain.—*United States.*

This infusion should be clear; have a deep red-brown colour, and a slightly bitter, mawkish taste, which is scarcely corrected by the aromatic. In warm weather it spoils in forty-eight hours; and, by simple exposure to the air, attracts oxygen, which occasions a yellowish precipitate of oxidized extractive, which is not purgative, but gripes violently. On this account it should be preserved in a well-closed vessel, or made only when it is wanted. Dr. Paris observes that the common taste of this infusion is completely covered by the addition of bohea tea. Decoction of guaiac is said to increase its powers, and to render it milder. Camphor mixture augments its activity. It is precipitated by the strong acids, the alkaline carbonates, lime-water, solutions of nitrate of silver, bichloride of mercury, acetate and diacetate of lead, tartar emetic, and infusion of yellow cinchona bark, which are, consequently, incompatible in formulæ with these infusions.—THOMSON.

Infusion of senna can be properly prepared with cold water.

INFUSUM SENEGA—*Infusion of Senega, E.*—Take of senega 10 drachms; boiling water a pint. Infuse for four hours in a covered vessel, and strain.—*Edinburgh.*

INFUSUM SERPENTARIÆ—*Infusion of Serpentary, L. and E.*—Take of serpentary half an ounce; distilled water, boiling, a pint. Macerate for four hours in a vessel lightly covered, and strain.—*London and Edinburgh.*

INFUSUM SERPENTARIÆ—*Infusion of Virginia Snakeroot, U.S.*—The same as London.—*United States.*

This infusion is bitter and acrid; it is rendered blue by tincture of iodine, and brownish by the sesquioxide of iron; and it is not affected by tincture of galls.

INFUSUM SIMAROUBÆ—*Infusion of Simarouba, L., E., and D.*—Take of simarouba, bruised, 3 drachms; distilled water, boiling, a pint. Macerate for two hours in a vessel lightly covered, and strain.—*London, Edinburgh, and Dublin.*

This infusion is inodorous, has a slightly bitter, astringent taste, is clear, and of a greenish-straw colour. It is incompatible with lime-water, alkaline carbonates, and many metallic salts, especially those of lead, silver, and mercury; and with infusion of galls, catechu, and cinchona.

INFUSUM SPIGELIÆ—*Infusion of Pinkroot, U.S.*—Take of pinkroot half an ounce; boiling water a pint. Macerate for two hours in a covered vessel, and strain.—*United States.*

INFUSUM TABACI—*Infusion of Tobacco, D.*—Take of tobacco leaves a drachm; boiling water a pint. Macerate for an hour in a lightly-covered vessel, and strain.—*Dublin.*

INFUSUM TABACI—*Infusion of Tobacco, U.S.*—The same as Dublin.—*United States.*

This infusion has the odour of the plant in a slight degree, and a hot, very acrid, taste.

INFUSUM ULMI—*Infusion of Slippery Elm Bark, U.S.*—Take of slippery elm-bark, sliced and bruised, an ounce; boiling water a pint. Macerate for two hours in a lightly-covered vessel, and strain.—*United States.*

INFUSUM VALERIANÆ—*Infusion of Valerian, L. and D.*—Take of valerian half an ounce; distilled water, boiling, a pint. Macerate for half an hour in a vessel lightly covered, and strain.—*London and Dublin.*

INFUSUM VALERIANÆ—*Infusion of Valerian, U.S.*—The same as London.—*United States.*

Concentrated infusions eight or sixteen times the usual strength are now very generally used by medical men. They are prepared by concentrating the ordinary preparation, in vacuo or otherwise, to one eighth; or by percolating one part of cold distilled water through eight parts of ingredients, adding to each a proportion of spirit. They are all very different and inferior to the officinal preparations, and, however carefully made, are inefficient and unworthy substitutes: when prepared with boiling water, and evaporated in an open pan, they are especially bad; the vegetable matter in solution suffers the usual alterations consequent upon exposure to heat and atmosphere; a quantity of soluble matter is rendered insoluble, and subsides, together with the precipitate formed on the addition of the spirit, and forms the deposit that is found in every infusion that has stood some time. When prepared in vacuo, however, they are superior; they possess the virtues and properties of the various ingredients, but slightly affected, and, when diluted, closely resemble the officinal infusions; still they are not to be relied on: the addition of alcohol alone is sufficient to cause material alteration, that cannot be estimated; and the length of time they are kept permits great changes to occur unperceived, and, as infusion is considered the very best manner of administering some medicines, great uncertainty will arise if these concentrated preparations are used except on an emergency.

LINIMENTS.

LINIMENTUM ÆRUGINIS—*Liniment of Verdigris, L.*—Take of verdigris, powdered, an ounce; vinegar 7 fluid ounces; honey, despumated, 14 ounces. Dissolve the verdigris in the vinegar, and strain through a linen cloth; afterwards, the honey being poured in, boil down to a proper consistence.—*London.*

OXYMEL CUPRI SUBACETATIS—*Oxymel of Subacetate of Copper, D.*—Take of prepared verdigris 1 ounce; wine vinegar 7 fluid ounces; clarified honey 14 ounces. Dissolve the verdigris in the vinegar, and strain it through a linen cloth; add the honey, and boil the mixture to a proper consistence.—*Dublin.*

This preparation is the Mel Ægyptiacum of the old Pharmacopœias.

LINIMENTUM AMMONIÆ—*Liniment of Ammonia, L. and E.*—Take of solution of ammonia a fluid ounce; olive oil 2 fluid ounces. Shake them together until they are mixed.—*London and Edinburgh.*

LINIMENTUM AMMONIÆ—*Liniment of Ammonia, D.*—Take of caustic water of ammonia 2 fluidrachms; olive oil 2 fluid ounces. Mix them.—*Dublin.*

LINIMENTUM AMMONIÆ—*Liniment of Ammonia, U.S.*—The same as the London.—*United States.*

LINIMENT AMMONIACAL—*Liniment of Ammonia, P.*—Take of olive oil 8 parts; solution of ammonia 1 part. Mix, and preserve in stopped bottles.—*Paris Codex.*

In these preparations a chemical union takes place between the alkali and the fixed oils, and produces a white soap, which is kept fluid by the water of the solution of ammonia.

LINIMENTUM AMMONIÆ COMPOSITUM—*Compound Liniment of Ammonia, E.*—Take of stronger aqua ammoniæ, sp. gr. ·880, 5 fluid ounces; tincture of camphor 2 fluid ounces; spirit of rosemary 1 fluid ounce. Mix them well together. This liniment may be also made

weaker for some purposes with three fluid ounces of tincture of camphor and two of spirit of rosemary.—*Edinburgh.*

LINIMENTUM AMMONIÆ SESQUICARBONATIS—*Liniment of Sesquicarbonate of Ammonia, L.*—Take of solution of sesquicarbonate of ammonia a fluid ounce; olive oil 3 fluid ounces. Shake them well together until they are mixed.—*London.*

"This preparation is also a fluid soap; but the combination of the oil and alkali is less perfect, owing to the carbonic acid of the sesquicarbonate. It is also much less soluble in water, and, after a little time, the soapy matter separates from the water. It is intended for the same purposes as the strong liniment."

LINIMENTUM CALCIS—*Liniment of Lime Water, E.*—Take of linseed oil and lime-water, each, equal measures. Mix and agitate them well together.—*Edinburgh.*

LINIMENTUM CALCIS—*Liniment of Lime, D.*—Take of lime-water, olive oil, each, 3 fluid ounces. Mix them.—*Dublin.*

LINIMENTUM CALCIS—*Liniment of Lime, U.S.*—Take of lime-water, flaxseed oil, each, a fluid ounce. Mix them.—*United States.*

LINIMENT CALCAIRE—*Liniment of Lime, P.*—Take of lime-water 125 parts; oil of sweet almonds 16 parts. Mix well together, let them rest, and separate the soft soapy mass which floats on the surface.—*Paris Codex.*

This is a solution of earthy soap formed by the chemical union of the lime and oil; it is best to prepare it when wanted.

LINIMENTUM CAMPHORÆ—*Liniment of Camphor, L., E., and D.*—Take of camphor an ounce; olive oil 4 fluid ounces. Dissolve the camphor in the oil.—*London, Edinburgh, and Dublin.*

LINIMENTUM CAMPHORÆ—*Camphor Liniment, U.S.*—The same as above.—*United States.*

LINIMENTUM CAMPHORÆ COMPOSITUM—*Compound Camphor Liniment, L. and D.*—Take of camphor 2½ ounces; solution of ammonia 7½ fluid ounces; spirit of lavender a pint. Mix the solution of ammonia with the spirit; then let a pint distil from a glass retort, with a slow fire; lastly, in this dissolve the camphor.—*London and Dublin.*

LINIMENTUM CANTHARIDIS—*Liniment of Spanish Flies, U.S.*—Take of Spanish flies, in powder, an ounce; oil of turpentine half a pint. Digest for three hours by means of a water-bath, and strain.—*United States.*

LINIMENTUM HYDRARGYRI COMPOSITUM—*Compound Liniment of Mercury, L.*—Take of stronger ointment of mercury, lard, each, 4 ounces; camphor an ounce; rectified spirit a fluidrachm; solution of ammonia 4 fluid ounces. Rub the camphor first with the spirit, and then with the lard and ointment of mercury; lastly, the solution of ammonia being gradually poured in, mix them all.—*London.*

LINIMENT NARCOTIQUE—*Narcotic Liniment, P.*—Take of anodyne balsam 64 parts; wine of opium 8 parts. Mix by agitation.—*Paris Codex.*

LINIMENTUM OPII—*Liniment of Opium, L.*—Take of liniment of soap 6 fluid ounces; tincture of opium 2 fluid ounces. Mix.—*London.*

LINIMENTUM OPII—*Liniment of Opium, E.*—Take of castile soap 6 ounces; opium an ounce and a half; camphor 3 ounces; oil of rosemary 6 fluidrachms; rectified spirit 2 pints. Macerate the soap and opium in the spirit for three days; filter, add the oil and camphor, and agitate briskly.—*Edinburgh.*

LINIMENTUM SAPONIS—*Liniment of Soap, L. and D.*—Take of soap 3 ounces; camphor an ounce; spirit of rosemary 16 fluid ounces. Dissolve the camphor in the spirit; afterwards add the soap, and macerate with a gentle heat until it is dissolved.—*London and Dublin.*

LINIMENTUM SAPONIS—*Liniment of Soap, E.*—Take of castile soap 5 ounces; camphor 2½ ounces; volatile oil of rosemary 6 fluidrachms; rectified spirit 2 pints. Digest the soap in the spirit for three days; add the camphor and oil, and agitate briskly.—*Edinburgh.*

LINIMENTUM SAPONIS CAMPHORATUM—*Camphorated Soap Liniment, U.S.*—Opodeldoc.—Take of common soap 3 ounces; camphor an ounce; oil of rosemary, oil of origanum, each, a fluidrachm; alcohol a pint. Digest the soap with the alcohol, by means of a sandbath, till it is dissolved; then add the camphor and oils, and, when they are dissolved, pour the liquor into broad-mouthed bottles.—*United States.*

This liniment has, when cold, the consistence of a soft ointment.

LINIMENT SAVONNEUX—*Soap Liniment, P.*—Take of tincture of soap 52 parts; olive oil 4 parts; alcohol, sp. gr. ·860, 32 parts. Mix by agitation, and preserve in well-stopped bottles.—*Paris Codex.*

LINIMENT SAVONNEUX HYDROSULFURÉ—*Sulphurated Soap Liniment, P.*—Take of white soap 125 parts; oil of poppy seeds 250 parts; sulphuret of potash, dry, and in powder, 24 parts. Scrape the soap into fine shavings, and soften over a water-bath with an ounce of water, stirring continually; when it has become a homogeneous mass, add and mix the oil of poppy seeds, and then the sulphuret of potash. This preparation spoils quickly, and should, therefore, only be made as wanted.—*Paris Codex.*

BAUME OPODELDOCH—*Opodeldoc, P.*—Take of animal soap 32 parts; camphor 24 parts; solution of ammonia 8 parts; oil of rosemary 6 parts; oil of thyme 2 parts; alcohol, sp. gr. ·860, 250 parts. Dissolve the volatile oils in the alcohol, and distil to dryness by means of a water-bath; then dissolve the soap with a gentle heat; add the camphor, and when it is dissolved, add the ammonia; filter the hot solution, and put into well-stopped bottles.—*Paris Codex.*

LINIMENTUM SIMPLEX—*Simple Liniment, E.*—Take of olive oil 4 parts; white wax 1 part. Dissolve the wax in the oil with a gentle heat; and agitate well as the fused mass cools and concretes.—*Edinburgh.*

LINIMENTUM TEREBINTHINÆ—*Liniment of Turpentine, L. and D.*—Take of soft soap 2 ounces; camphor an ounce; oil of turpentine 16 fluid ounces. Shake them together until they are mixed.—*London and Dublin.*

LINIMENTUM TEREBINTHINATUM—*Turpentine Liniment, E.*—Take of resinous ointment 4 ounces; oil of turpentine 5 fluid ounces; camphor half an ounce. Melt the ointment, and gradually mix with it the camphor and oil, 'till a uniform liniment be obtained.—*Edinburgh.*

LINIMENTUM TEREBINTHINÆ—*Liniment of Turpentine, U.S.*—Take of oil of turpentine half a pint; resin cerate a pound. Add the oil of turpentine to the cerate previously melted, and mix them.—*United States.*

HONEYS.

MEL BORACIS—*Honey of Borax, L., E., and D.*—Take of borax, powdered, a drachm; honey, despumated, an ounce. Mix.—*London, Edinburgh, and Dublin.*

MEL DESPUMATUM—*Despumated or Clarified Honey, D.*—Melt the honey in a water-bath, and remove the scum as it rises.—*Dublin.*

By liquefying inferior honey, the wax, which it may have retained when expressed from the comb, rises to the surface; and at the same time any sand or other impurities, with which it may have been fraudulently mixed, fall to the bottom, or rise with the wax, and are easily separated. The specific gravity of purified honey is 1.31. It is less apt to gripe, and more agreeable to the taste and smell than crude honey.

MEL DESPUMATUM—*Clarified Honey, U.S.*—The same as above.—*United States.*

MEL PRÆPARATUM—*Prepared Honey, U.S.*—Take of clarified honey half a pint; diluted alcohol a pint; prepared chalk half an ounce. Having mixed the honey and diluted alcohol, add the prepared chalk, and allow the mixture to stand for two hours, occasionally stirring it. Then heat it to ebullition, filter, and, by means of a water-bath, evaporate the clear liquor, so that when cold it may have the specific gravity of 1.32.—*United States.*

MELLITE DE MERCURIALE—*Honey of Mercury, P.*—Take of purified juice of mercury 1 part; white honey 1 part. Boil to the consistence of a syrup, and strain.—*Paris Codex.*

MELLITE DE MERCURIALE COMPOSÉE—*Compound Honey of Mercury, P.*—Take of fresh root of common orris 64 parts; dried roots of gentian 32 parts; white wine 375 parts; clarified juice of mercury 1,000 parts; clarified juice of borage 250 parts; clarified juice of bugloss 250 parts; white honey 1,500 parts. Macerate the orris and gentian roots in the wine for twenty-four hours; strain and press; mix the liquor with the juices and the honey, and boil to the consistence of a syrup; strain.—*Paris Codex.*

MEL ROSÆ—*Honey of Rose, L.*—Take of red rose petals, dried, 4 ounces; water, boiling, 2½ pints; honey despumated 5 pounds. Macerate the rose petals in the water for six hours; then add the honey to the strained liquor, and boil down in a water-bath to a proper consistence.—*London.*

MEL ROSÆ—*Honey of Rose, E.*—Take of the dried petals of rosa gallica 4 ounces; boiling water 2½ pints; honey 5 pounds. Infuse the petals in the water for six hours; strain and squeeze; pour off the clear liquor; mix the honey with it; and evaporate the whole in the vapour-bath to the consistence of syrup, removing the scum which forms.—*Edinburgh.*

MEL ROSÆ—*Honey of Rose, D.*—Take of petals of red rose buds, dried and freed from their claws, 4 ounces; boiling water 3 pints; honey 5 pounds. Macerate the petals in the water for six hours; then mix the honey with the strained liquor, and boil the mixture to the consistence of a syrup, taking off the scum.—*Dublin.*

MEL ROSÆ—*Honey of Rose, U.S.*—Take of red roses 2 ounces; clarified honey 2 pints; boiling water a pint and a half. Macerate the roses in the water for two hours, and strain; then add the honey, and evaporate by means of a water-bath to a proper consistence. The specific gravity of the honey of roses should be 1.32.—*United States.*

MELLITE DE ROSES ROUGES—*Honey of Roses, P.*—Take of the dried petals of red rose 1 part; boiling water 6 parts; white honey 6 parts. Infuse the roses in the water for twenty-four hours, and strain; let it

deposit; decant the bright liquor; add the honey, and boil to the proper consistence of a syrup.—*Paris Codex.*

Mellite Simple—*Honey Syrup, P.*—Take of white honey 3 parts; water 1 part. Dissolve with heat; skim and boil to the proper consistence of a syrup.—*Paris Codex.*

Oxymel—*Oxymel, L. and D.*—Take of honey despumated 10 pounds; acetic acid a pint and a half. Mix the acid with the honey made hot.—*London and Dublin.*

Oxymel Colchici—*Oxymel of Meadow Saffron, D.*—Take of the fresh root of meadow saffron, cut into thin slices, 1 ounce; distilled vinegar a pint; clarified honey 2 pints. Digest the colchicum with the vinegar in a glass vessel for two days; then to the liquor strongly expressed from the root add the honey; and, lastly, boil down the mixture to the consistence of a syrup, frequently stirring it during the boiling with a wooden spoon.—*Dublin.*

Oxymel Scillæ—*Oxymel of Squill, L. and D.*—Take of honey despumated 3 pounds; vinegar of squill a pint and a half. Boil down in a glass vessel, with a slow fire, to a proper consistence.—*London and Dublin.*

Oxymel Scillæ—*Oxymel of Squill, U.S.*—Take of clarified honey 3 pounds; vinegar of squill 2 pints. Mix them, and evaporate by means of a water-bath to a proper consistence. The specific gravity of the oxymel of squill should be 1.32.—*United States.*

Oxymel Scillitique—*Oxymel of Squill, P.*—Take of vinegar of squill 1 part; white honey 2 parts. Boil to a proper consistence.

In the same manner prepare oxymel of meadow saffron from vinegar of meadow saffron.—*Paris Codex.*

When kept for some time oxymel of squill becomes thick and lets fall a precipitate, which Vogel found to consist of citrate of lime, tannin, and honey.

Honey is in a great measure soluble in water. Boiling alcohol also dissolves it, and on cooling deposits crystals of grape sugar. It is composed of grape sugar, uncrystallizable sugar, and probably a little unfermentable mannite. The greater part of it undergoes the vinous fermentation, and yields an alcoholic liquor called mead. Honey is sometimes adulterated with starch, which may be discovered by tincture of iodine or the method recommended by the London College. In some countries it is rendered noxious by the bees sucking poisonous flowers. The most effectual mode of purifying honey is to boil it gently with a third of its volume of water, and a sixteenth of its weight of ivory black, not too finely powdered; to let the grosser particles of charcoal subside, and remove the rest by filtration through flannel; to clarify the liquor with white of egg; and to concentrate the filtered liquor over the vapour-bath to the due consistence.—Dr. Christison.

Metallic Preparations.

Alumen Exsiccatum—*Dried Alum, L.*—Let alum melt in an earthen vessel over the fire; then let the fire be increased until the ebullition has ceased.—*London.*

Alumen Exsiccatum—*Dried Alum, E.*—Take any convenient quantity of alum; fuse it over the fire in a vessel of iron or earthenware; continue the heat till ebullition ceases and vapour is no longer discharged; and then reduce it to powder.—*Edinburgh.*

Alumen Siccatum—*Burnt Alum, D.*—Take of alum any quantity; expose it to the heat of a strong fire in an earthen vessel until it cease to boil; then pulverize it.—*Dublin.*

Sulfate d'Alumine et de Potasse Desséché—*Dried Alum, P.*—Take of alum any quantity. Put it into an earthen crucible, and heat moderately; the salt fuses in its water of crystallization, swells up, and becomes a very white, spongy, light mass; this is dried alum. The heat should be continued until all the water of crystallization is evaporated; care must be taken not to heat it to bright redness, as the alum is then decomposed.—*Paris Codex.*

In these processes the alum loses its water of crystallization, and becomes anhydrous; but if the heat be too great its acid is partly expelled, and it is partially decomposed, leaving alumina and sulphate of potash. According to Kirwan, alum desiccated at 700° loses more than half its acid. By experiments English alum lost 0.43 in a moderate heat, and 0.46 in a red; Levant alum 0.41 in a moderate heat, and 0.44 in a red heat. Chaptal found that in a red heat alum of his own manufacture lost 0.67; Roman alum 0.50; English 0.47; and Levant alum 0.40.

Dried alum has a more astringent taste than the crystallized salt. It is obtained in the form of a light, spongy, opaque, friable mass, 100 parts of which consist of 36.25 acid, and 63.75 bases, when it has been exposed to a heat of 700°; but, in general, the desiccation being conducted at a lower temperature, the proportion of acid is greater. Dried alum consists of 1 eq. of alumina = 51.4 + 4 of sulphuric acid = 160.4 + 1 of potassa = 47.15, making the equivalent of 258.95.—Thomson.

Aluminium, the metallic base, is obtainable from alumina, pure clay, or the earth of alum, but with considerable difficulty; it is in the form of a grey powder, or in small scales or spangles of a metallic lustre. Heated to redness in the open air, it burns with a vivid light, and yields alumina. It is not oxidized at common temperatures, nor tarnished by water. Sulphuric and nitric acids, even when concentrated, do not affect it at common temperatures; but, by the aid of heat, the former rapidly dissolves it, and sulphurous acid gas is disengaged.

Liquor Aluminis Compositus—*Compound Solution of Alum, L.*—Take of alum, sulphate of zinc, each, an ounce; boiling water 3 pints. Dissolve the alum and sulphate of zinc together in the water; afterwards strain.—*London.*

Preparations of Antimony.

Antimonii Oxydum—*Sesquioxide of Antimonoy, E.*—Take of sulphuret of antimony in fine powder 4 ounces; muriatic acid (commercial) 1 pint; water 5 pints. Dissolve the sulphuret in the acid with the aid of a gentle heat; boil for half an hour; filter; pour the fluid into the water; collect the precipitate on a calico filter; wash it well with cold water, then with a weak solution of carbonate of soda, and again with cold water till the water ceases to affect reddened litmus paper. Dry the powder over the vapour-bath.—*Edinburgh.*

Antimonii Oxydum Nitromuriaticum—*Sesquioxide of Antimony, with some adhering Chloride of Antimony, D.*—Take of prepared sulphuret of antimony 20 parts; muriatic acid 100 parts; nitric acid 1 part. Mix the acids, add gradually the sulphuret, digest with a gradually increasing heat until the effervescence is completed, and boil for an hour. Pour the strained cool liquor into a gallon of water. Let the oxide of antimony afterwards subside, and wash it with much water till all traces of acid be gone; finally, dry the oxide in bibulous paper.—*Dublin.*

Oxide d'Antimoine par Precipitation—*Oxide of Antimony by Precipitation, P.*—Take of powder of algaroth 200 parts; bicarbonate of potash 100 parts. Dissolve the bicarbonate in ten times its weight of water; add the powder of algaroth to the solution, and boil during half an hour; decant; wash the precipitate carefully, and dry it.—*Paris Codex.*

In the first stage of the Edinburgh and Dublin processes sulphuretted hydrogen is disengaged, and the antimony of the sulphuret either, according to the views of some, unites simply with the chlorine of the acid, while the hydrogen of the acid combines with the sulphur; or, as those think who consider the chloride to be dissolved in the form of hydrochlorate of the oxide, water is decomposed, supplying oxygen to the antimony, and hydrogen to the sulphur. The small addition of nitric acid in the Dublin formula is thought to be of use by decomposing the sulphuretted hydrogen which may remain in the fluid at the end; but it has appeared to me unnecessary. Oxide of antimony is tasteless, white, heavy, permanent in the air, insoluble in water, easily soluble in muriatic, tartaric, or acetic acid, and also in boiling solution of bitartrate of potash. Heat first renders it yellow, which colour disappears on cooling; a stronger heat fuses it; and, if the heat be raised to full redness, sublimation takes place, and crystalline needles are formed. Oxide of antimony is the base of all the common antimonial salts, and the active part of all the medicinal preparations of this metal. It is a sesquioxide, consisting of two equivalents of antimony and three of oxygen (2 Sb. + 3 O), or 125.2 of the former, and 24 of the latter.—Christison.

Sulphuretum Antimonii Preparatum—*Prepared Sulphuret of Antimony, D.*—Take of sulphuret of antimony any quantity; let it be reduced to powder, and separate for use the very fine particles, in the manner directed for the preparation of chalk.—*Dublin.*

This mechanical preparation is intended to fit the sulphuret for internal use.

Antimonii Oxysulphuretum—*Oxysulphuret of Antimony, L.*—Take of sesquisulphuret of antimony, powdered, 7 ounces; solution of potash 4 pints; distilled water 2 gallons; diluted sulphuric acid as much as may be sufficient. Mix the sesquisulphuret of antimony, solution of potash, and water together, and boil with a slow fire for two hours, frequently stirring, distilled water being often added, that it may fill about the same measure. Strain the liquor, and gradually pour into it as much diluted sulphuric acid as may be sufficient to precipitate the oxysulphuret of antimony; then, with water wash away the sulphate of potash, and dry what remains with a gentle heat.—*London.*

Antimonii Sulphuretum Aureum—*Golden Sulphuret of Antimony, E.*—Take of sulphuret of antimony, in fine powder, 1 ounce; solution of potash 11 fluid ounces; water 2 pints. Mix the water and solution of potash, add the sulphuret, boil for an hour, filter immediately, and precipitate the liquid, while hot, with an excess of diluted sulphuric acid. Collect the precipitate on a calico filter, wash it thoroughly with water, and dry it with a gentle heat.—*Edinburgh.*

Sulphur Antimoniatum Fuscum—*Brown Antimoniated Sulphur, D.*—Take of prepared sulphuret of antimony 1 part; water of caustic potassa 8 parts; diluted sulphuric acid 11 parts, or a sufficient quantity; add the sulphuret of antimony to the solution of caustic potassa, and boil for an hour. Strain the hot solution through a doubled cloth, and drop into it the sulphuric acid. Wash away the sulphate of potassa

with hot water; finally, rub the dried brown antimoniated sulphur to powder.—*Dublin.*

Antimonii Sulphuretum Precipitatum—*Precipitated Sulphuret of Antimony, U.S.*—Take of sulphuret of antimony, in fine powder, 6 ounces; solution of potassa 4 pints; distilled water, diluted sulphuric acid, each, a sufficient quantity. Mix the sulphuret of antimony with the solution of potassa and 12 pints of distilled water, and boil them over a gentle fire for three hours, constantly stirring, and occasionally adding distilled water, so as to preserve the same measure. Strain the liquor immediately through a double linen cloth, and drop into it, while yet hot, diluted sulphuric acid so long as it produces a precipitate; then wash away the sulphate of potassa with hot water, dry the precipitated sulphuret of antimony, and rub it into a fine powder.—*United States.*

Soufre Doré d'Antimoine—*Golden Sulphuret of Antimony, P.*—Take of mother liquor from kermes mineral any convenient quantity. Add by degrees an excess of diluted acetic acid; wash and dry the powder, which precipitates in the same way as the kermes.—*Paris Codex.*

The following is the theory of these processes:—During the boiling the potassa and the sesquisulphuret of antimony are each partially decomposed, and form sulphuret of potassium and sesquioxide of antimony, mixed with much of the sesquisulphuret dissolved in the potassa. The diluted sulphuric acid, which is added to the strained solution whilst it is hot, combines with the potassa, changing it into the sulphate, and disengaging sulphuretted hydrogen gas, whilst the oxide and the sulphuret of antimony are precipitated together, forming the oxysulphuret.—Thomson.

"Oxysulphuret of antimony is a light, orange-coloured powder, without smell, slightly styptic to the taste, and insoluble in water; soluble with the aid of a gentle heat in alkalis, and partly soluble in muriatic or nitro-muriatic acid. It readily catches fire, and burns with a blue and greenish flame, exhaling the odour of sulphurous acid, and leaving the metal after the combustion in the form of a greyish-white oxide. Mr. Phillips found, in boiling it with bitartrate of potash, the oxysulphuret lost twelve per cent. by weight, which is the amount of sesquioxide it contains. Berzelius contends that this oxide is not in a state of chemical action with the sulphuret, but tenaciously adhering to it."

This compound is not much subject to adulteration. The impurities indicated by authors in pharmacy, namely, sulphur, oxide of iron, and the red woods, such as sanders wood, will be sufficiently detected by the simple test given by the Edinburgh College. That is, when a genuine sample of the golden sulphuret of antimony is acted on by muriatic acid, aided by heat, the sulphuret and oxide of antimony are dissolved, a very little sulphur is left, and a colourless solution is obtained. If there be any oxide of iron present, the solution is yellow; if there be any of the red dyewoods, these are left undissolved; if there be too much sulphur, this will be indicated by an unusual amount of residuum.—Christison.

Antimony is a white brilliant metal, often called the regulus of antimony, to distinguish it from what is termed crude antimony, which is the sesquisulphuret of the Pharmacopœias, and the most abundant ore of the metal.

Antimonii Potassio—Tartras—*Potassio-Tartrate of Antimony, L.*—Take of sesquisulphuret of antimony, rubbed to powder, nitrate of potash, powdered, each 2 pounds; bitartrate of potash, powdered, 14 ounces; hydrochloric acid 4 fluid ounces; distilled water a gallon. Accurately mix the sesquisulphuret of antimony with the nitrate of potash; the hydrochloric acid being then added, and the powder spread upon an iron plate, ignite it. Rub what remains to a very fine powder when it is cold, and wash it frequently with boiling water until it is free from taste. Mix the powder thus prepared with the bitartrate of potash, and boil for half an hour in a gallon of distilled water. Strain the liquor while hot, and set it aside, that crystals may be formed. These being removed and dried, let the liquor again evaporate, that it may yield crystals.—*London.*

Antimonii Tartarizatum—*Tartarized Antimony, E.*—Take of sulphuret of antimony, in fine powder, 4 ounces; muriatic acid, commercial, 1 pint; water 5 pints. Dissolve the sulphuret in the acid with the aid of a gentle heat; boil for half an hour; filter; pour the liquid into the water; collect the precipitate on a calico filter; wash it with cold water till the water ceases to redden litmus paper; dry the precipitate over the vapour-bath.

Take of this precipitate 3 ounces; bitartrate of potash 4 ounces and 2 drachms; water 27 fluid ounces. Mix the powders, add the water, boil for an hour, filter, and set the liquor aside to crystallize. The mother liquor, when concentrated, yields more crystals, but not so free of colour, and therefore requiring a second crystallization.—*Edinburgh.*

Antimonii et Potassæ Tartras—*Tartrate of Antimony and of Potash, D.*—Take of nitro-muriatic oxide of antimony 4 parts; bitartrate of potash, in fine powder, 5 parts; distilled water 34 parts. Boil the water in a glass vessel; then gradually add to it the oxide and bitartrate of potash, previously well mixed together, and boil for half an hour; then filter the solution through paper, so that as it slowly cools crystals may be formed.—*Dublin.*

Antimonii et Potassæ Tartras—*Tartrate of Antimony and Potassa, U.S.*—Take of sulphuret of antimony, in fine powder, 4 ounces; muriatic acid 25 ounces; nitric acid 2 drachms; water a gallon. Having mixed the acids together in a glass vessel, add by degrees the sulphuret of antimony, and digest the mixture with a gradually increasing heat till effervescence ceases; then boil for an hour. Filter the liquor when it has become cold, and pour it into the water. Wash the precipitated powder frequently with water till it is entirely freed from acid, and then dry it.

Take of this powder 2 ounces; bitartrate of potash, in very fine powder, 2½ ounces; distilled water 18 fluid ounces. Boil the water in a glass vessel; then add the powders, previously mixed together, and boil for an hour; lastly, filter the liquor while hot, and set it aside to crystallize. By further evaporation the liquor may be made to yield an additional quantity of crystals, which should be purified by a second crystallization.—*United States.*

Tartrate de Potasse et d'Antimoine—*Tartar Emetic, P.*—Take of bitartrate of potash 300 parts; glass of antimony 200 parts; water 2,000 parts. Reduce the antimony to very fine powder, and the bitartrate of potash to coarse powder; boil them with the water for half an hour, stirring continually, and replacing the water as it boils away; let it cool without filtering; separate the crystals which form, and wash them with the mother liquor. Filter the mother liquor, evaporate to dryness, exhaust the residuum with a little boiling water, filter, and set aside to crystallize. Unite all the crystals obtained, dissolve them in boiling water, clarify the solution with white of egg, concentrate, and crystallize.—*Paris Codex.*

When the sesquisulphuret of antimony and nitrate of potash are mixed in equal proportions, and set fire to, according to the London process, the nitre is decomposed, oxidates a portion of the sesquisulphuret, converting it into sesquioxide and sulphuric acid, and gives up its potash to the sulphuric acid thus formed. The sesquioxide at the same time unites with the remaining sesquisulphuret of antimony to form a definite oxysulphuret, the pure crocus of antimony. The purpose served by the muriatic acid is believed to be to prevent the formation of sulphuret of potassium, or decompose it as fast as it is formed, and also to neutralize free potash, which would otherwise be also produced. The sulphate and muriate of potash being now washed away, the crocus of antimony is left tolerably pure, and in a state in which it is easily attacked by the bitartrate of potash. The last stage of the process consists in dissolving out the sesquioxide from the crocus, by mixing it with bitartrate of potash, and boiling the mixture with water; upon which a tartrate of potash and antimony is formed and crystallizes on cooling, while sesquisulphuret of antimony is left undissolved; the residuum may be used for repeating the process. In the process of the Edinburgh and Dublin Colleges there is first obtained a sesquioxide of antimony, with a little adhering chloride, as described under the article *Oxydum Antimonii*; and on this being boiled in water with bitartrate of potash, its adhering chloride is resolved into hydrochloric acid and sesquioxide by the decomposition of water: the whole sesquioxide at the same time unites with the bitartrate of potash to form tartar emetic; while the hydrochloric acid remains in the fluid, and helps to maintain oxide of iron and other metallic impurities in solution at the time tartar emetic crystallizes. The first crop of crystals obtained by this process are nearly or entirely colourless: more may be obtained by concentrating the mother liquor; but these are somewhat coloured with iron, from which they are freed by a second crystallization. The colleges do not direct any further use to be made of the mother liquors. On neutralizing the acid contained in them, however, by means of chalk, more crystals may be obtained by further concentration. After this third crystallization, the residual liquor yields, on evaporation, a gelatinous mass from which no more tartar emetic can be obtained.—Christison.

Tartar emetic is obtained in transparent crystals, the general character of which is an octahedron with a rhombic base. They are colourless, but have a metallic styptic taste; on exposure to the air they effloresce and become opaque. When strongly heated, this salt is decomposed, and an alloy of antimony and potassium is obtained. It is soluble in fifteen parts of temperate water, and in three parts at 212°, in which crystals form as it cools. The solution spoils when kept long. The powder is white when pure, but it is frequently adulterated with bitartrate of potash. A great variety of adulterations of tartar emetic have also been indicated by authors in pharmacy. Among these may be chiefly mentioned oxide of iron, lime, silica, sulphuric acid or a sulphate, and muriatic acid or a muriate—which may be present, all of them from faulty preparation of the salt, and several of them as fraudulent additions. If a few of the crystals be put into a solution of sulphuretted hydrogen, their goodness may be judged of by the quantity of orange-coloured precipitate that forms. When the salt is adulterated with bitartrate of potassa, it is precipitated from its solution in water by spirit. The tests of the London College are, "Totally soluble in water, no bitartrate of potash remaining in the vessel; and, hydrosulphuric acid being added, a reddish-

coloured precipitate is obtained. Neither chloride of barium nor nitrate of silver being added to a dilute solution precipitates anything; nitric acid throws down a precipitate, which is dissolved by an excess of it." The tests of the Edinburgh College are, "Entirely soluble in twenty parts of water; solution colourlesss, and not affected by solution of ferrocyanide of potassium; a solution in forty parts of water is not affected by its own volume of a solution of eight parts of acetate of lead in thirty-two parts of water and fifteen parts of acetic acid. This salt is composed of one equivalent of tartrate of potash, one equivalent of ditartrate of antimony, and three equivalents of water.

"It is incompatible with strong acids, the alkalis, and alkaline carbonates, the earths, the metals and their oxides, hydrosulphurets, lime-water, chloride of calcium, and the acetates of lead; many vegetable decoctions or infusions, especially those which are bitter or astringent, such as cinchona, rhubarb, catechu, kino, and galls; it may, however, be prescribed in conjunction with decoctions of oak-bark, nitrate of silver, or chloride of barium."

VINUM ANTIMONII POTASSIO—TARTRATIS—*Wine of Potassio—Tartrate of Antimony, L., E., and D.*—Take of potassio-tartrate of antimony 2 scruples; sherry wine a pint. Dissolve the potassio-tartrate of antimony in the wine.—*London, Edinburgh, and Dublin.*

VINUM ANTIMONII—*Antimonial Wine, U.S.*—Take of tartrate of antimony and potassa a scruple; wine 10 fluid ounces. Dissolve the tartrate of antimony and potassa in the wine.—*United States.*

VIN ANTIMONIÉ—*Antimonial Wine, P.*—Take of tartrate of antimony and potash 2 parts; Malaga wine 564 parts. Dissolve.—*Paris Codex.*

One fluid ounce of this solution contains two grains of tartar emetic. A precipitation frequently occurs in this wine, owing either to impurity or the badness of the wine.

PULVIS ANTIMONII COMPOSITUM—*Compound Powder of Antimony, L.*—Take of sesquisulphuret of antimony, powdered, a pound; bone shavings 2 pounds. Mix and throw them into a crucible red hot in the fire, and stir constantly until vapour no longer rises. Rub that which remains to powder, and put it into a proper crucible; then apply fire, and increase it gradually, that it may be red hot for two hours. Rub the residue to very fine powder.—*London.*

PULVIS ANTIMONIALIS—*Antimonial Powder, E.*—Take of sulphuret of antimony, in coarse powder, hartshorn shavings, equal weights. Mix them, put them into a red-hot iron pot, and stir constantly till they acquire an ash-grey colour, and vapours no longer rise. Pulverize the product, put it into a crucible with a perforated cover, and expose this to a gradually increasing heat till a white heat be produced, which is to be maintained for two hours. Reduce the product when cold to fine powder.—*Edinburgh.*

PULVIS ANTIMONIALIS—*Antimonial Powder, D.*—Take of sulphuret of antimony, in coarse powder, 1 part; hartshorn shavings 2 parts. Throw the mixture into a wide iron pot heated to redness, assiduously stirring until the sulphurous vapours cease to be extricated, and the matter acquire a grey colour. Rub the mass to powder when it is cold, and put it into a coated crucible; over which invert another crucible, having a small hole in its bottom, and luke the two firmly together. Roast the matter with a heat gradually raised to whiteness for the space of two hours; and lastly, when it is cold, grind to a very fine powder.—*Dublin.*

POUDRE ANTIMONIALE—*Antimonial Powder, P.*—Take of sulphuret of antimony, in powder, hartshorn shavings, each 50 parts. Mix them, and roast in an earthern crucible, stirring continually, till they are reduced to a grey powder; powder this very finely, and expose to a red heat in a crucible for two hours.—*Paris Codex.*

The following is the theory of the process:—The gelatinous matter of the horn or bones is decomposed and burned off, leaving behind the earthy matter (subphosphate of lime, with a little calcareous carbonate). The sulphur of the sesquisulphuret is expelled in the form of sulphurous acid, while the antimony attracts oxygen from the air, forming antimonious acid, and a variable quantity of sesquioxide of antimony. By the subsequent heating, the sesquioxide is for the most part converted into antimonious acid; but one portion is usually left unchanged, while another is volatilized. The carbonate of lime of the horn is decomposed by the united agencies of heat and antimonious acid; carbonic acid is expelled, and a small quantity of antimonite of lime formed. The sides of the crucible, in which the second stage of the process had been conducted, are found, at the end of the operation, to be lined with a yellow glaze, and frequently with yellow crystals of sesquioxide.—PEREIRA.

According to Phillips, antimonial powder is a compound of one equivalent of antimonious acid and one equivalent of phosphate of lime. From the uncertainty of uniformity in this preparation, Mr. Chenevix proposes the substitution of a powder prepared according to the following formula:—Let equal parts of white oxide of antimony, and of phosphate of lime, be dissolved in the smallest possible quantity of hydrochloric acid, and pour the solution into a sufficient quantity of distilled water, containing pure ammonia in solution. A powder precipitates, which is a mechanical mixture of chloride of antimony and phosphate of lime.—THOMSON.

This preparation is an inodorous, insipid, gritty powder, of a dull white colour; it is insoluble in water, and only partially soluble in acids. It is not frequently adulterated. The following are the tests of the Edinburgh College:—Distilled water boiled with it and filtered gives, with sulphuretted hydrogen, an orange precipitate; muriatic acid digested with the residue becomes yellow, does not become turbid by dilution, but gives a copious orange precipitate with sulphuretted hydrogen.

KERMÉS MINERAL—*Kermes Mineral, P.*—Take of crystallized carbonate of soda 128 parts; water 1,280 parts; sulphuret of antimony 6 parts. Dissolve the soda in hot water; heat to boiling point; add the antimony, reduced to very fine powder, stirring continually with a wooden spatula; boil for one hour; filter the hot solution into warm earthen vessels, containing each a little very hot water. Allow the solution to cool *very slowly*. Collect then on a filter the red powder which is deposited; wash with cold water until the water comes through pure; submit the powder thus washed to pressure, and dry it with a moderate heat; pass it through a fine sieve, and preserve it from air and light.—*Paris Codex.*

KERMÈS PRÉPARÉ PAR LA VOIE SÈCHE—*Kermes Mineral Prepared the Dry Way, P.*—Take of sulphuret of antimony 500 parts; carbonate of potash 1,000 parts; sulphur, sublimed and washed, 30 parts. Mix these three substances and melt in a Hessian crucible. When the mixture has well fused, pour into an iron mortar, and, when cold, reduce it to very fine powder. Boil it in an iron vessel with 10,000 parts of water. Filter the liquor while hot, and let it cool slowly; decant; place the kermes on a filter, wash it with care, and dry as ordered above. By boiling again the insoluble portions that remain in the iron pan and on the filter, another quantity of kermes of inferior quality is obtained, and so on till they are exhausted.—*Paris Codex.*

OXIDE D'ANTIMOINE CRISTALLISÉ—*Crystallized Oxide of Antimony, P.*—Take of metallic antimony any convenient quantity. Place in a proper apparatus, and sublime.—*Paris Codex.*

OXYCHLORURE D'ANTIMOINE—OXYCHLORIDE OF ANTIMONY—*Powder of Algaroth, P.*—Take of liquid protochloride of antimony 100 parts. Add to the chloride about thirty or forty times its weight of pure water; the mass becomes curdled, through the formation of the powder of algaroth, which must be washed well, and dried with a gentle heat. When it remains long in water, it experiences a molecular alteration, and takes a well-defined crystalline appearance.—*Paris Codex.*

When water is added to the solution of sesquichloride, mutual reaction occurs, the products of which are free hydrochloric acid and sesquioxide of antimony; the latter combines with some undecomposed sesquichloride of antimony, and forms the oxychloride of antimony, commonly termed the pulvis Algarothi, Algaroth's powder (from Algarotti, an Italian physician, who recommended its use in medicine). It is sometimes called the mercury of life. By continued washing with hot water, the sesquichloride which it contains is decomposed, and the product is sesquioxide of antimony.—PEREIRA.

PROTOCHLORURE D'ANTIMOINE—PROTOCHLORIDE OF ANTIMONY—*Butter of Antimony, P.*—Take of sulphuret of antimony 100 parts; hydrochloric acid 300 parts. Put the sulphuret into a matras, with two tubes adapted; place over a small furnace, under a good chimney; add the acids by small portions at a time through one tube; agitate the matras occasionally; gradually elevate the temperature to ebullition, and sustain at this for about half an hour; let it cool; decant the liquid into a porcelain capsule, and evaporate over a sandbath to one third; place then the concentrated solution in a long and strait vessel to deposit; introduce the clear liquor into a glass retort, and adapt a receiver; distil with care, rejecting the first portions until they do not precipitate on the addition of water; collect the following portion till the liquid becomes solid on cooling; then change the receiver, for one very dry, and heat the neck of the retort occasionally, that it may not become choked up. When the distillation is finished, liquefy the product, and pour into small well-stopped bottles for use. The liquid butter of antimony is obtained by exposing the solid to the air.—*Paris Codex.*

The butter of antimony of the shops is a transparent liquid, varying in its colour (which depends on the presence of iron) from yellow to deep red. Its specific gravity is from 1.2 to 1.5. It fumes in the air (especially when ammonia is present), in consequence of containing an excess of hydrochloric acid. It reacts on vegetable alkalis as a powerful acid. It contains sesquichloride of animony, free hydrochloric acid, a little nitrous acid, water, and sesquichloride of iron. It may also contain other impurities derived from the sesquisulphuret from which it is directly or indirectly prepared. Serullas says he never found arsenic in it.—PEREIRA.

SUR ANTIMONIATE DE POTASSE—*Biantimoniate of Potash, P.*—Take of pure antimony 10 parts; nitrate of potash 20 parts. Reduce them to fine powder and mix carefully. Put the mixture by small portions at a time into a red-hot crucible. When it is almost filled,

adapt a cover to it, and maintain at a red heat during half an hour. Take out the pasty mass and allow it to cool; place it in an earthen vessel, and pour upon it a large quantity of very clear water. Let it digest for some time, stirring occasionally with a wooden spatula, and wash by decantation till the water comes off pure; lastly, dry what remains with a gentle heat.—*Paris Codex.*

When nitrate of potash is fused with antimony, the nitrate is decomposed with the evolution of nitrogen and the oxides of nitrogen, and the antimony is peroxidized; after calcination there remains a mixture of antimoniate of potash, and nitrite and nitrate of potash; by washing, the salts of potash are removed, and the biantimoniate remains undissolved.

Preparations of Silver.

Argenti Nitras—*Nitrate of Silver, L.*—Take of silver an ounce and a half; nitric acid a fluid ounce; distilled water 2 fluid ounces. Mix the nitric acid with the water, and dissolve the silver in them in a sandbath. Afterwards increase the heat gradually, that the nitrate of silver may be dried. Melt this in a crucible with a slow fire, until, the water being expelled, ebullition has ceased; then immediately pour it into proper moulds.—*London.*

Argenti Nitras—*Nitrate of Silver, E.*—Take of pure silver an ounce and a half; pure nitric acid 1 fluid ounce; distilled water 2 fluid ounces. Mix the acid and water, add the silver, and dissolve it with the aid of a gentle heat; increase the heat gradually till a dry salt be obtained; fuse the salt in an earthenware or porcelain crucible, and pour the fused matter into iron moulds previously heated, and greased slightly with tallow. Preserve the product in glass vessels.—*Edinburgh.*

Argenti Nitratis Crystalli—*Crystallized Nitrate of Silver, D.*—Take of silver, flatted into plates and cut, 37 parts; nitrous acid 60 parts; put the silver into a glass vessel, and pour over it the acid previously diluted. Then dissolve the metal with a gradually raised heat, and evaporate the solution till crystals are formed on cooling it. These are to be dried without heat, and preserved in a glass vessel in an obscure place.—*Dublin.*

Argenti Nitras Fusum—*Fused Nitrate of Silver, D.*—Dissolve the silver in diluted nitric acid, in the manner above described; then evaporate the solution to dryness. Put the mass which remains into a crucible, and liquefy it over a slow fire. Finally pour it into proper moulds, and preserve it in glass bottles.—*Dublin.*

Argenti Nitras—*Nitrate of Silver, U.S.*—Take of silver, in small pieces, an ounce; nitric acid 5 fluidrachms; distilled water 2 fluid ounces. Mix the acid with the water, and dissolve the silver in the mixture on a sandbath; then gradually increase the heat, so that the resulting salt may be dried. Melt this in a crucible over a gentle fire, and continue the heat until ebullition ceases; then immediately pour it into suitable moulds.—*United States.*

Nitrate d'Argent Cristallisé—*Crystallized Nitrate of Silver, P.*—Take of pure silver 1 part; nitric acid, of specific gravity 1,300, 2 parts. Put them into a matras, and heat gently on a sandbath; the silver dissolves with evolution of a considerable quantity of gas. Pour the solution into a porcelain capsule, and allow it to crystallize. Evaporate the mother liquor, decant, and set aside to crystallize again; drain the crystals by means of a funnel, washing with a small quantity of distilled water to remove the adhering nitric acid; when it is sufficiently dry, preserve in well-stopped bottles.—*Paris Codex.*

Nitrate d'Argent Fondu—*Fused Nitrate of Silver, P.*—Take of crystallized nitrate of silver 100 parts. Fuse in a crucible of silver or platina, and pour it into a mould, previously warmed and greased, where it will solidify on cooling. When it is poured immediately after being fused, it is of a greyish white colour, and very brittle; if it is fused any time before being poured into the mould it is harder and acquires a browner colour, which is owing to a portion of silver being reduced to the metallic state.—*Paris Codex.*

In the above processes the acid is partly decomposed by the silver, which is oxidized, and the oxide dissolved as it forms in the remaining acid. One atom of silver takes one of the oxygen of the acid; this forms the oxide which requires one atom of nitric acid to form it into the nitrate. The effervescence is very violent, owing to the extrication of the nitrous gas (binoxide of nitrogen) of the decomposing acid, which flies off in orange-coloured fumes; part, however, is retained in the solution, and gives it a greenish-blue colour, which goes off as it cools. In this stage of the process the silver is held in solution in the state of an oxynitrate, which, by due evaporation, may be obtained in brilliant, thin, right rhombic plates, having an an intensely bitter metallic taste; and, although by the subsequent melting a part of the acid is expelled, yet it is probable that the product is not reduced to the state of a subnitrate.

The difference in the quantity of acid ordered in the above formulæ does not alter the nature of the product; but it is of some consequence in an economical point of view to know that even in the London formula the quantity of acid is too great, ten fluidrachms being amply sufficient for the solution of two ounces of silver. Several minute particulars are necessary to be attended to in conducting the process. The silver should be perfectly free from any alloy of copper, which renders the salt more or less deliquescent. Its presence is indicated when the solution remains of a permanent greenish blue colour, in which case it may be purified by repeated solutions and crystallizations, as long as tabular crystals are produced, and nitrate of copper being left in the mother liquor. The acid employed should be also very pure; for, if hydrochloric or sulphuric acids be present, the solution is rendered turbid by the formation of a precipitate of chloride or sulphate of silver. For the same reasons, the water should be pure. The granular form of the silver is preferable to the laminated form. For the subsequent evaporation and melting a porcelain crucible should be used; it should be of ample size, to allow of the swelling and ebullition. The heat should not exceed 426°, nor be continued after the fusion is complete; for, by continuing the heat, the nitric acid is expelled, and the nitrate partially reduced.—Thomson.

Fused nitrate of silver presents a greyish colour and radiated fracture, but differs in no other respect from the crystallized nitrate. It is soluble in its own weight of temperate water and in four parts of rectified spirit. By exposure to strong light it becomes black, and especially if in contact with carbonaceous matter; this is owing to the reduction of a part of the silver to the metallic state. It blackens almost all organic substances with which it is placed in contact, and it corrodes the soft animal tissues. Glass stoppers should be used for the bottles in which it is kept; cork quickly decomposes it, especially in solution. The constituents of 100 parts are, 31.39 of oxide of silver, and 68.39 of nitric acid; or one proportion of oxide of silver = 116 + 1 of nitric acid = 54.15: mak ng the equivalent 170.15.

Nitrate of silver is subject to various adulterations, the chief of which are the nitrates of lead, zinc, copper, and potash; and, in consequence of careless preparation, it may likewise contain free silver. If silver containing copper be used, the nitrate is greenish by the presence of subnitrate, or blackish on account of the oxide of copper which it contains. Chloride of sodium should give a white precipitate totally soluble in excess of ammonia, which it will not do if it contain chloride of lead. The solution, after precipitation and the removal of the chloride of silver, should give no precipitate, nor suffer any discolouration by hydrosulphuric acid; if it should, copper or lead, or both, may be present (PL). Soluble in distilled water, with the exception of a very scanty black powder; twenty-nine grains dissolved in one fluid ounce of distilled water, acidulated with nitric acid, precipitated with a solution of nine grains of muriate of ammonia, briskly agitated for a few seconds, and then allowed to rest a little, will yield a clear supernatant liquor, which still precipitates with more of the test.—PE.

Nitrate of silver is incompatible with almost all spring and river water, on account of the common salt which they usually contain; chlorides, the alkalis, potash, soda, and their carbonates; lime-water. Ammonia added in excess redissolves the precipitate at first formed; the sesquicarbonate throws down carbonate of silver; it is decomposed by a strong heat, phosphorus, hydrogen gas, and the hydrosulphurets; is precipitated from its aqueous solution by mercury, copper, and some other metals; sulphuric, hydrochloric, and tartaric acids, and the salts which contain them; hydrosulphuric acid and its salts, the double sulphurets, and astringent vegetable infusions likewise decompose it.

Liquor Argenti Nitratis—*Solution of Nitrate of Silver, L.*—Take of nitrate of silver a drachm; distilled water a fluid ounce. Dissolve the nitrate of silver in the water, and strain; then the access of light being prevented, keep it in a well-closed vessel.—*London.*

Argenti Cyanidum—*Cyanide of Silver, L.*—Take of nitrate of silver 2 ounces and 2 drachms; diluted hydrocyanic acid, distilled water, each a pint. Dissolve the nitrate of silver in the water, and add to them the diluted hydrocyanic acid, and mix. Wash what is precipitated with distilled water, and dry it.—*London.*

Argenti Cyanuretum—*Cyanuret of Silver, U.S.*—Take of nitrate of silver 15 drachms; hydrocyanic acid, distilled water, each, a pint. Having dissolved the nitrate of silver in the water, add the hydrocyanic acid, and mix them. Wash the precipitate with distilled water, and dry it.—*United States.*

In this process double decomposition takes place; the hydrogen of the hydrocyanic acid combines with the oxygen of the oxide of silver of the nitrate to form water, whilst the cyanogen, uniting with the silver, forms the cyanide of that metal. It is precipitated in the form of a heavy white powder; it consists of one equivalent of each of its component parts; that is, 108 parts of silver, and 26.4 of cyanogen. It is insoluble in water, and dissolves in sulphuric and nitric acids only when they are concentrated and very hot, with the evolution of hydrocyanic acid, while the silver is oxidated, and at the same time dissolved to form a sulphate or nitrate. Hydrochloric acid, hydrosulphuric acid, and the hydrosulphates, decompose it readily. The alkalis, potash, and soda, do not dissolve it, but it is easily soluble in ammonia. It is decomposed by a red heat, and gives, when it has been well dried, metallic silver and cyanogen, which may be ascertained by the rose-coloured flame produced when the gas is set fire to; but when it contains water it yields hydrocyanic acid and cyanogen, and leaves silver mixed with charcoal.

Preparations of Arsenic.

Liquor Potassæ Arsenitis—*Solution of Arsenite of Potash, L.*—Take of arsenious acid, broken into very small pieces, carbonate of potash, each 80 grains; compound tincture of lavender 5 fluidrachms, distilled water a pint. Boil the arsenious acid and carbonate of potash with half a pint of the water in a glass vessel until they are dissolved. Add the compound tincture of lavender to the cooled liquor. Lastly, add besides, of distilled water, as much as may be sufficient, that it may accurately fill a pint measure.—*London.*

Liquor Arsenicalis—*Solution of Arsenite of Potash, E.*—The same as the London Pharmacopœia.—*Edinburgh.*

Liquor Arsenicalis—*Solution of Arsenite of Potash, D.*—Take of powder of white arsenic 60 grains; carbonate of potash 60 grains; compound tincture of lavender 4 fluidrachms; distilled water a pint (old wine measure). Dissolve the white arsenic and carbonate of potash in half a pint of the water by boiling them in a glass vessel. Filter if necessary. Add the tincture when the solution has cooled, and then distilled water till the whole measures a pint.—*Dublin.*

Liquor Potassæ Arsenitis—*Solution of Arsenite of Potassa, U.S.*—Take of arsenious acid, in small fragments, pure carbonate of potassa, each 64 grains; distilled water a sufficient quantity; compound spirit of lavender half a fluid ounce. Boil the arsenious acid and carbonate of potassa with 12 fluid ounces of distilled water, in a glass vessel, till the acid is entirely dissolved. To the solution when cold add the spirit of lavender, and afterwards sufficient distilled water to make it fill exactly the measure of a pint.—*United States.*

Arsenite de Potasse—Liqueur Arsénicale de Fowler—*Fowler's Solution of Arsenite of Potash, P.*—Take of arsenious acid 5 parts; carbonate of potash 5 parts; distilled water 500 parts; compound spirit of mint 16 parts. Powder the arsenious acid; mix it with the carbonate of potash and water; and boil in a glass vessel until all is dissolved. When it is cold add the compound spirit of mint; filter, and add water sufficient to make the quantity up to 500 parts.—*Paris Codex.*

Solution of arsenite of potash has the odour, taste, and colour of the compound spirit of lavender. It has a strong alkaline reaction. It contains four grains of arsenious acid per ounce.

The arsenious acid sold in powder should not be used for this preparation; it is very commonly adulterated with sulphate of lime, which, being insoluble in the solution of carbonate of potash, puzzles the operator. This adulteration, and most others likely to occur, may be detected by heating the powdered arsenious acid in a crucible; whatever is not volatilized is an impurity. This preparation is incompatible with acids and acidulous salts, hydrosulphuric acid after the addition of an acid; hydrosulphates, sulphuret of potassium, and similar compounds; lime-water; earthy salts, such as alum, sulphate of magnesia, and chloride of calcium; metallic salts, as sulphate and sesquichloride of iron, nitrate of silver, and sulphate of copper; decoction of cinchona.

Liqueur Arsenicale de Pearson—*Pearson's Solution of Arseniate of Soda, P.*—Take of crystallized arseniate of soda 1 grain; distilled water 1 ounce. Dissolve and filter.—*Paris Codex.*

Arséniate de Soude—*Arseniate of Soda, P.*—Take of nitrate of soda 100 parts; arsenious acid 116 parts. Mix carefully, and heat to redness in a Hessian crucible; treat the residue with water; and add solution of carbonate of soda until it is very alkaline; evaporate and set aside, that it may crystallize on cooling. If the mother liquor is not alkaline, add more carbonate of soda, in order to evaporate and crystallize afresh.

Arseniate of soda has an alkaline reaction; it contains 29.26 per cent. of arsenic acid, which represents 19.1 of metallic arsenic.—*Paris Codex.*

Arséniate de Potasse—*Arseniate of Potassa, P.*—Take of arsenious acid 500 parts; nitrate of potassa 500 parts. Reduce to very fine powder, and mix intimately; heat the mixture to redness in an earthen crucible until no more vapour is disengaged. Allow it to cool; dissolve the product completely in cold water; filter, evaporate, and set aside to cool, that it may crystallize. When the mother liquors no longer redden litmus paper, they will furnish no more crystals. Then evaporate them to dryness: a purverulent white deliquescent residue is obtained, which is an arseniate of potassa, containing a much larger proportion of potassa than the former. Arseniate of potassa has a strong acid reaction; it contains 63.86 per cent. of arsenic acid, which represents 41.69 of metallic arsenic.—*Paris Codex.*

Arsenic acid is prepared by subjecting arsenic, or, which is preferable, arsenious acid, to the action of nitric acid; by the oxygen which the nitric acid yields during decomposition, the arsenic is perfectly acidified and converted into arsenic acid, which is readily soluble in water, and much more powerfully acid than the arsenious acid. Its compounds are called arseniates.—Phillips.

Arsenici Oxydum Album Sublimatum—*Sublimed White Oxide of Arsenic, D.*—Rub the oxide of arsenic to a coarse powder, and expose to heat in a proper vessel, guarding against the vapours, that the white oxide of arsenic may sublime.—*Dublin.*

The oxide or sesquioxide of arsenic (white arsenic, arsenic, and arsenious acid), when recently sublimed, is in large masses, of a white shining appearance like porcelain externally. On breaking a large mass, it is often found to be quite transparent internally; but the transparent portion soon becomes opaque and white, a change which seems owing simply to a different molecular arrangement. Its density varies from 3.69 to 3.73, the latter being the density of the transparent, the former of the opaque, variety. It is brittle, and easily pulverized. Its taste is not acrid, but faintly sweetish; it has no smell. It sublimes at 380° F. without undergoing any change, and without exhaling any odour; and it condenses in sparkling transparent crystals, which soon become opaque, and whose form is invariably the regular octaedre. White arsenic is sparingly soluble in water. Temperate water with difficulty takes up about a 400th of its weight of the powder; boiling water dissolves about a ninth of its weight, and, on cooling to 60°, retains a 35th. The transparent variety seems to be less soluble than the opaque. The sesquioxide is considered an acid because it forms regular compounds with bases, of which those with the alkalis are soluble; those with the ordinary metallic oxides, insoluble; and most of which are obtained by double decomposition.—Dr. Christison.

The greater part of the arsenious acid found in the shops is the product of the second sublimation of the acid after it is obtained from roasting ores of cobalt. Although prepared on a great scale, it is as pure as sublimation can make it, and the adulterations are unimportant. The tests for its purity given by the London Pharmacopœia are:—"Entirely sublimed by heat. Mixed with charcoal, and exposed to heat, it emits an alliaceous smell. It is dissolved by boiling water; and hydrosulphuric acid, when added, throws down a yellow precipitate (sesquisulphuret of arsenic), and lime-water yields a white one (arsenite of lime). Metallic arsenic is a grey, brittle metal, which, when fresh broken, has considerable lustre. Its specific gravity is 5.884. It combines with two different quantities of oxygen, forming arsenious acid and arsenic acid. Arsenious acid is composed of one and a half equivalent of oxygen = 12, and one equivalent of arsenic = 38. Arsenic acid consists of two and a half equivalents of oxygen = 20, and one equivalent of arsenic = 38."

Preparations of Barium.

Barii Chloridum—*Chloride of Barium, L.*—Take of carbonate of barytes, broken into small pieces, 10 ounces; hydrochloric acid half a pint; distilled water 2 pints. Mix the acid with the water, and add the carbonate of barytes gradually to them. Then, heat being applied, and the effervescence finished, strain and boil down the liquor, that crystals may be formed.—*London.*

Barytæ Murias—*Muriate of Barytes, E.*—Take of carbonate of baryta, in fragments, 10 ounces; pure muriatic acid half a pint; distilled water 2 pints. Mix the acid and water; add the carbonate by degrees; apply a gentle heat towards the close of the effervescence, and, when the action is over, filter, concentrate, and set aside the solution to crystallize. Or, take of sulphate of baryta 2 pounds; charcoal, in fine powder, 4 ounces; pure muriatic acid a sufficiency. Heat the sulphate to redness; reduce it to fine powder; mix the charcoal with it thoroughly; heat the mixture in a covered crucible for three hours at a low white heat. Pulverize the product; put it gradually into 5 pints of boiling water; boil for a few minutes; let it rest for a little over a vapour-bath; pour off the clear liquor, and filter, if necessary, keeping it hot. Pour 3 pints of boiling water over the residuum, and proceed as before. Unite the two liquids, and, while they are still hot, or, if cooled, after heating them again, add pure muriatic acid gradually so long as effervescence is occasioned. In this process the solutions ought to be as little exposed to the air as possible; and, in the last step, the disengaged gas should be discharged by a proper tube into a chimney or the ashpit of a furnace. Strain the liquor, concentrate it, and set it aside to crystallize.—*Edinburgh.*

Barytæ Murias—*Muriate of Barytes, D.*—Take of sulphate of baryta 10 parts; of wood charcoal, rubbed into fine powder, or of lamp-black, 1 part. Torrefy the sulphate of baryta in the fire, and put it into water while it is candescent; then rub it into a fine powder, in the manner ordered for prepared chalk. Mix the powders intimately, and expose the mixture to a strong heat for four hours, until it become white hot. The mass being cooled, dissolve it in boiling water, ten times the weight of the sulphate of baryta, and filter the solution. Add to this as much muriatic acid as will saturate the baryta, guarding against the vapour. Then strain the solution, and, by means of evaporation and refrigeration, crystallize.—*Dublin.*

Barii Chloridum—*Chloride of Barium, U.S.*—Take of carbonate of baryta, in small fragments, a pound; muriatic acid 12 fluid ounces; water 3 pints. Mix the acid with the water, and gradually add the carbonate of baryta. Towards the close of the effervescence apply a gentle heat, and, when the action has ceased, filter the liquor, and boil it down so that crystals may form when it cools.—*United States.*

Chlorure de Barium—*Chloride of Barium, P.*—Take of sulphate

of barytes 1,000 parts; wood charcoal 200 parts; hydrochloric acid Q.S. Powder the sulphate of barytes and charcoal, and mix carefully. Expose the mixture in a closely covered crucible, not quite filled, for two hours to a red heat in a reverberatory furnace. Withdraw the crucible from the fire; allow it to become quite cold before removing the cover, and separate the superficial stratum of charcoal. If the process has been well conducted, the residue will have a reddish-brown colour, and be slightly united round the sides of the crucible. Put it into an earthen pan with three or four times its weight of water, and add, stirring continually with a wooden spatula, sufficient hydrochloric acid to give to the water a weak acid reaction. This decomposition produces a quantity of sulphuretted hydrogen gas, which had better be ignited as it is disengaged, to avoid the inconvenience its presence produces. Filter the solution, and wash the residue with warm water; the washings and the filtered liquor are to be evaporated to dryness. The residue after evaporation must be redissolved in a little water, adding to this solution a small excess of sulphuret of barium, to precipitate the iron which it contains. Filter again, concentrate by slow evaporation, and crystallize.—*Paris Codex.*

"When the chloride of barium is prepared from the carbonate, the hydrochloric acid first effects the decomposition of the carbonate of barytes, evolving carbonic acid; both the acid and barytes are next decomposed, and water and chloride of barium are formed. When prepared from sulphate of barytes, the charcoal, aided by heat, decomposes the sulphuric acid of the sulphate, and the oxide of barium converting them into sulphur and barium by attracting their oxygen and forming with it carbonic acid, and carbonic oxide gas, which burns with a blue flame around the edge of the crucible cover. The changes that ensue on dissolving and decomposing the sulphuret are easily understood on reflecting that metallic sulphurets and metallic chlorides are considered to become hydrosulphates and hydrochlorates of oxides when they are dissolved in water. Boiling water, therefore, added to this sulphuret dissolves it; but during the solution the water is partially decomposed: a portion of the sulphur attracts the oxygen of the decomposed water, and forming sulphuric acid, this unites with a little of the baryta formed by the attraction of the barium for oxygen, so as to reproduce some sulphate which precipitates; while its hydrogen unites with another portion of the sulphur, and forms sulphuretted hydrogen, the combination of which, with the remaining sulphuret, converts it into hydrosulphuret, and prevents its further decomposition. Lastly, the hydrochloric acid added to the hot aqueous solution of these sulphurets is decomposed, and precipitates the sulphur; while at the same time the chlorine unites with the metal, and chloride of barium remains in solution."

Several other methods have been proposed for the preparation of this salt. The following is that recommended by Bouillon La Grange:—Pulverize together equal parts of sulphate of baryta and chloride of calcium, project the mixture into a red-hot crucible, and let the fire be continued till the whole be melted, which is then to be poured out on a heated tile. After it is cold reduce the mass to powder; boil it for some minutes in six times its weight of distilled water, and filter the solution; then evaporate the liquor to a pellicle, and set it aside to crystallize. The crystals require to be redissolved and again crystallized, to free them from any of the chloride of lime they may retain on the first crystallization. The Edinburgh processes, however, are preferable to this of La Grange, as the previous calcination reduces any metallic salts that may be combined with the sulphate; and, being thus rendered insoluble, they are separated during the first solution of the sulphuret.—Thomson.

"Chloride of barium crystallizes in rectangular tables bevelled on the edges; its density is 2.825; it has an acrid, bitter, very nauseous taste; it is colourless and transparent, and very brilliant; permanent in the ordinary state of the atmosphere, but efflorescent if the air be very dry. When heated it decrepitates, owing to the discharge of water, and, at a high temperature, the anhydrous salt fuses, but is not decomposed. It is soluble in twice and a half its weight of water at 60°, and in little more than its own weight of boiling water. It is sparingly soluble in rectified spirit, and insoluble in pure alcohol. Muriate of baryta or chloride of barium is now commonly considered a compound of one equivalent of barium, one equivalent of chlorine, and two equivalents of water, and consequently 68.7 metal, 35.42 chlorine, and 18 water. But it may equally well be viewed as a hydrochlorate of baryta with one equivalent of water; and those who take this view of the crystallized salt consider the salt fused at a red heat as the only true chloride of barium."

Barium is a metal which has been procured only in small quantities, and its properties are but imperfectly known; with oxygen it forms the alkaline earth, or metallic oxide, barytes: this is met with in the state of carbonate and of sulphate of barytes.—Phillips.

Liquor Barii Chloridi—*Solution of Chloride of Barium, L.*—Take of chloride of barium a drachm; distilled water a fluid ounce. Dissolve the chloride of barium, and strain.—*London.*

Solutio Barytæ Muriatis—*Solution of Muriate of Barytes, E.*—Take of muriate of baryta 1 drachm; distilled water a fluid ounce. Dissolve the salt in the water.—*Edinburgh.*

Barytæ Muriatis Aquæ—*Solution of Muriate of Baryta, D.*—Take of muriate of baryta 1 part; distilled water 3 parts. Dissolve.—*Dublin.*

Liquor Barii Chloridi—*Solution of Chloride of Barium, U.S.* Take of chloride of barium an ounce; distilled water 3 fluid ounces. Dissolve the chloride of barium in the water, and filter.—*United States.*

Chloride of barium gives a colourless solution; the boiling point of a saturated solution is 222°, and this consists of a hundred parts of water and seventy-eight of crystals. It is immediately decomposed by sulphuric acid and sulphates, and by the alkaline carbonates, but ammonia gives no precipitate in it; the alkaline borates and phosphates are precipitated in the form of a white powder. Its affinity for sulphuric acid is so great, that as a reagent it is capable of detecting 0.00009 of that acid in any fluid, forming with it an insoluble compound. Chloride of barium is always pure, as met with in the shops of this country.

Preparations of Bismuth.

Bismuthi Trisnitras—*Trisnitrate of Bismuth, L.*—Take of bismuth an ounce; nitric acid a fluid ounce and a half; distilled water 3 pints. Mix a fluid ounce of the water with the nitric acid, and dissolve the bismuth in them; then pour off the solution. To this add the rest of the water and set by, that the powder may subside. Afterwards, the supernatant liquor being poured off, wash the trisnitrate of bismuth with distilled water, and dry it with a gentle heat.—*London.*

Bismuthi Album—*Trisnitrate of Bismuth, E.*—Take of bismuth, in fine powder, 1 ounce; nitric acid (density 1380) one fluid ounce and a half; water 3 pints. Add the metal gradually to the acid, favouring the action with a gentle heat, and adding a very little distilled water, so soon as crystals or a white powder may begin to form. When the solution is complete, pour the liquid into the water. Collect the precipitate immediately on a calico filter, wash it quickly with cold water, and dry in a dark place.—*Edinburgh.*

Bismuthi Trisnitras—*Trisnitrate of Bismuth, D.*—Take of bismuth, in powder, 7 parts; nitric acid, diluted, 20 parts; distilled water 100 parts. Add the bismuth gradually to the acid, and dissolve by the aid of heat. Mix the solution with water, wash the precipitate with distilled water, and dry on blotting-paper with a gentle heat.—*Dublin.*

Bismuthi Subnitras—*Subnitrate of Bismuth, U.S.*—Take of bismuth, in fragments, 1 ounce; nitric acid a fluid ounce and a half; distilled water a sufficient quantity. Mix a fluid ounce of distilled water with the nitric acid, and dissolve the bismuth in the mixture. When the solution is complete, pour the clear liquor into three pints of distilled water, and set the mixture by, that the powder may subside. Lastly, having poured off the supernatant fluid, wash the subnitrate of bismuth with distilled water, wrap it in bibulous paper, and dry it with a gentle heat.—*United States.*

Sous-Nitrate de Bismuth—*Subnitrate of Bismuth, P.*—Take of pure bismuth 200 parts; diluted nitric acid 600 parts. Put the acid into a matras, reduce the bismuth to coarse powder, and add it to the acid by small portions at a time with care, in order to avoid too much effervescence; when it is over, gently boil, to render the solution quite complete; allow it to deposit; decant, evaporate in a porcelain capsule to two thirds, and add forty or fifty times its weight of distilled water, stirring the mixture the while; allow the abundant precipitate of subnitrate of bismuth to deposit. The supernatant liquor still contains a quantity of acid nitrate of bismuth, which is precipitated by adding sufficient solution of ammonia to saturate a portion of the acid. The ammonia must be added by small quantities, and with great care, so that the liquor may always possess a strong acid reaction.—*Paris Codex.*

In these processes the nitric acid is partly decomposed, the bismuth oxidized, and nitric oxide gas is given off; and, being thus rendered soluble in the remainder of the acid, a solution of the nitrate of bismuth is obtained. This solution, when filtered, is colourless and transparent; has an acid reaction, and a harsh caustic taste; and, were the process stopped here, crystals of the nitrate might be easily obtained by evaporation. The affinity of the acid for the oxide in the nitrate is, nevertheless, so slight, that it can be separated from it by water; and this is effected in the second part of the process, for the water then added combining with the greater part of the acid, and depriving the fixed oxide of its solubility, this is precipitated, in combination with some water and the remainder of the acid, forming the trisnitrate of bismuth. It is, in fact, a hydrated oxide of bismuth, combined with a small proportion of the nitric acid. The supernatant fluid contains in solution a nitrate of bismuth, with an excess of acid.—Thomson.

"Trisnitrate, subnitrate, or white bismuth, is a heavy pure white, inodorous, tasteless powder, which becomes darkish under exposure to light if it contain any silver. It is soluble in the strong acids, from which it is readily precipitated by water; thence it is insoluble in that fluid, and, for the same reason, in very dilute acids. It is soluble in ammonia, although this salt precipitates it from the nitrate; but is very sparingly soluble in potassa and soda. It is blackened by sulphuretted hydrogen gas. When mixed with charcoal, and exposed to

a strong heat, the trisnitrate is decomposed, and the bismuth reduced to its metallic state. Different accounts have been given of its composition. Some allege that it contains four equivalents of oxide, one of acid, and two of water (Grouvelle). But the most exact analysis is probably that of Geiger, who found it to be composed of three equivalents of oxide of bismuth, and one of nitric acid ($3BO + NO^5$), and consequently of 237 of base and 54.15 of acid.

"The trisnitrate of bismuth met with in the shops of this country is little subject to adulteration, but it is said to be mixed sometimes with earthy carbonates or carbonate of lead. The tests of the London College are, 'Soluble in nitric acid without effervescence. Diluted sulphuric acid being added to the solution, nothing is thrown down. If it possess these properties, it contains no carbonate whatever, nor any oxide of lead.'"

Bismuth is a metal of a reddish-white colour; it is brittle, and easily reduced to powder; its structure is usually crystalline, and, by cautious cooling after it has been melted, it may be made to assume a cubic form. Its specific gravity is 9.882; it melts at the temperature of 476°. By exposure to the air it tarnishes, but does not readily oxidize in it unless heated, and then it is converted into yellow oxide, consisting of one equivalent of bismuth 72 and one equivalent of oxygen 8.—Phillips.

Preparations of Lime.

Calx—*Lime, L.*—Take of chalk a pound. Break it into small pieces, and burn it in a very strong fire for an hour.—*London.*

Calx—*Lime, E.*—Heat white marble, broken into small fragments, in a covered crucible at a full red heat for three hours, or till the residuum, when slaked and suspended in water, no longer effervesces on the addition of muriatic acid.—*Edinburgh.*

"Lime for pharmaceutical purposes is required to be more completely burned than is usually the case with that which is obtained from the kilns. Chalk does not afford lime in a state of absolute purity, as it frequently contains silex, alumina, magnesia, and marine shells; and a portion of phosphate of lime which is not decomposed by the fire. Calcareous spar or Carrara marble should be preferred, but for ordinary use common chalk, as directed by the London College, is pure enough. However, to obtain perfectly pure lime, dissolve white marble in diluted hydrochloric acid, and to the filtered solution add solution of ammonia as long as any precipitate falls; then filter, and decompose the chloride by a solution of pure carbonate of potassa; wash the precipitate, and expose it to violent heat in a platina crucible, till it cease to lose weight. The result is pure lime, 56 parts of which should be furnished for every 100 parts of pure white marble used. After the lime has become cool it must be transferred immediately into well-closed vessels."

Lime is a greyish-white moderately hard substance; slightly sonorous, brittle, and easily reduced to powder. Its specific gravity is 2.3. It is extremely infusible. It is inodorous, and has a burning, bitter, alkaline taste; it corrodes animal matter, and changes the vegetable blues to green, and yellows to brown. By exposure to the air it imbibes moisture and falls to powder, and is gradually reconverted to the state of carbonate by combining with the carbonic acid of the atmosphere. When water is sprinkled over it, immediate absorption takes place, with a hissing noise, the lime heats, swells, and splits in all directions, and crumbles down into a fine pure white powder, and is then said to be slaked, in which state, having combined with a portion of the water, it is converted to a hydrate, which parts with its water at a red heat. It is composed of one equivalent of lime 28, and one equivalent of water 9. The only important adulterations of lime are with carbonate of lime, and with magnesia—the former derived from imperfect preparation or careless keeping, the latter from a magnesian limestone having been used to obtain the lime. The tests of the London College under the head of Calcis hydras are, "Dissolve in dilute hydrochloric acid without effervescence. Ammonia added to the solution throws down nothing. The solubility in dilute hydrochloric acid without effervescence proves the absence of carbonic acid, that the lime has been well burnt, and that no silica is present. If the solution give no precipitate with ammonia, it contains neither oxide of iron nor alumina."

Chalk is composed of carbonic acid and lime, and lime is the oxide of the metal calcium, first obtained by Davy in 1808, by the agency of voltaic electricity. An amalgam of mercury and calcium was formed, and in attempting to separate the mercury by distillation, and after the greater part of it had been expelled, the tube broke, and the metal calcium, which had the colour and lustre of silver, instantly took fire, and burnt with an intense white light into lime; that it is a white combustible metal is nearly all that is known respecting calcium.—Phillips.

Liquor Calcis—*Lime Water, L.*—Take of lime half a pound; distilled water 12 pints. Upon the lime, first slaked with a little of the water, pour the remaining water, and shake them together; then immediately cover the vessel, and set it by for three hours; afterwards keep the solution with the remaining lime in stopped glass vessels, and, when it is to be used, take from the clear solution.—*London.*

Aqua Calcis—*Lime Water, E.*—Take any convenient quantity of water; pour a little of it over about a twentieth of its weight of lime; when the lime is slaked, add it to the rest of the water in a bottle; agitate well; allow the undissolved matter to subside; pour off the clear liquor when it is wanted, replacing with more water, and agitate as briskly as before.—*Edinburgh.*

Aqua Calcis—*Lime Water, D.*—Take of fresh-burnt lime and boiling water each 1 part. Put the lime into an earthen vessel and sprinkle the water upon it, keeping the vessel shut until it become hot and fall into powder; then pour upon it *thirty parts of cold water.* The vessel being again shut, let the mixture be frequently shaken for twenty-four hours; and then, after the lime has subsided, pour off the limpid fluid, and preserve it in well-stopped bottles.—*Dublin.*

Liquor Calcis—*Lime Water, U.S.*—Take of lime 4 ounces; distilled water a gallon. Upon the lime, first slaked with a little of the water, pour the remainder of the water, and stir them together; then immediately cover the vessel and set it aside for three hours. Keep the solution, together with the undissolved lime, in stopped glass bottles, and pour off the clear liquor when it is wanted for use.—*—United States.*

Eau de Chaux—*Lime Water, P.*—Take of lime any convenient quantity. Place the lime in an earthen pan, and pour upon, by degrees, a little water; so that it becomes hot, gives out steam, falls into powder, and is well slaked. Place this in a large vessel, and agitate with thirty or forty times its weight of water, to remove the potash which it contains, if the quicklime has been prepared with a wood fire. Let it deposit; decant and reject the liquor; then add to the residue 100 times its weight of distilled water. Let the mixture be shaken frequently during several hours, and allow it to deposit afresh; decant the clear liquor, and preserve in well-stopped bottles, placing some lime in the bottles for preservation.—*Paris Codex.*

This is a simple solution of lime in water. Unlike most other substances, lime is more soluble in cold than in hot water; and, when lime-water which has been prepared with cold water is heated, small crystals of lime, probably containing water, are formed and deposited. I find that a pint of water at 32° dissolves 13.25 grains of lime; the same quantity at 60° dissolves 11.6 grains; and, at 212°, 6.7 grains. It is, then, evident that water at 32° takes up nearly one seventh more lime than water at 60°, and almost double the quantity dissolved by boiling water.—Phillips.

Lime-water is limpid, colourless, and inodorous; has a strong, disagreeable alkaline taste, and alkaline reaction. It turns vegetable blues green, and yellows brown. It unites with oi, forming an imperfect soap. The linimentum calcis of the Pharmacopœias is a lime soap with an excess of oil. Like lime itself, it quickly attracts carbonic acid from the atmosphere, which forms on its surface a pellicle of carbonate of lime, and eventually the whole of the lime is precipitated from the solution; hence the necessity of preserving it in well-stopped bottles. By evaporating the solution in an air-pump, six-sided prismatic crystals of hydrate of lime may be obtained. It is decomposed by the acids and sulphur; acidulous salts; the alkaline carbonates, phosphates, borates, tartrates, and citrates; the infusions of orange-peel, calumba, cinchona, rhubarb, and senna.

Calcii Chloridum—*Chloride of Calcium, L.*—Take of chalk 5 ounces; hydrochloric acid, distilled water, each half a pint. Mix the acid with the water; and to these gradually add the chalk to saturation. Then, the effervescence being finished, strain; evaporate the liquor until the salt is dried. Put this into a crucible, and, having melted it in the fire, pour it out upon a flat clean stone. Lastly, when it is cold, break it into small pieces, and keep it in a well-closed vessel. —*London.*

Calcis Murias—*Muriate of Lime, E.*—Take of white marble, in fragments, 10 ounces; muriatic acid (commercial) and water, of each 1 pint. Mix the acid and water; add the marble by degrees, and, when the effervescence is over, add a little marble in fine powder till the liquor no longer reddens litmus; filter, and concentrate to one half; put the remaining fluid in a cold place to crystallize; preserve the crystals in a well-closed bottle. More crystals may be obtained by concentrating the mother liquor.—*Edinburgh.*

Calcis Murias—*Muriate of Lime, D.*—Take of the liquor which remains after the distillation of the solution of caustic ammonia, any quantity; strain the solution, and keep it over the fire in a shallow vessel until the muriate of lime is completely dry. It must be kept in a well-stopped bottle.—*Dublin.*

Chlorure de Calcium—*Chloride of Calcium, P.*—Take of carbonate of lime 1,000 parts; hydrochloric acid Q.S. Add the lime to the acid by small portions at a time, to avoid too brisk an effervescence, until it is thoroughly saturated; then filter and evaporate to dryness; and put the product in bottles hermetically sealed. Crystallized chloride of calcium is obtained by evaporating the solution to 1,400, and allowing it to cool. The fused salt is prepared by liquefying the dry salt in a crucible, with a progressively-increased temperature, and pouring it upon a flat stone. The residue in the preparation of the solution of ammonia can be employed for making chloride of calcium; it is only necessary to dissolve it in water, to filter the solution, and to evaporate to dryness.—*Paris Codex.*

According to the modern theory relative to the constitution of the compounds of chlorine, this element unites with calcium, the metalloids of lime, to form chloride of calcium—the fused muriate of lime of chemists in the early part of the present century. When this salt is dissolved in water it is held, according to the newest theory, to dissolve simply as chloride of calcium; but, according to the older doctrine, it becomes hydrochlorate of oxide of calcium (lime) through decomposition of an equivalent of water. On the solution being sufficiently concentrated, crystals are formed, which contain water of crystallization, and these may be viewed either as chloride of calcium with six equivalents of water, or as hydrochlorate of lime with five equivalents only. These considerations are necessary for understanding the nomenclature of the colleges. The Edinburgh College has adhered to the old nomenclature with the view of securing a permanent pharmaceutic name. But the muriate of lime of this college is the hydrated crystallized salt; while the Dublin muriate is the fused salt without water, and containing about twice as much chloride of calcium.—Christison.

Chloride of calcium is an inodorous, colourless, and translucent salt; of a warm, pungent, bitter, saline taste; excessively deliquescent in the air, and of course very soluble in water; fusible at a red heat, and incapable of being sublimed or decomposed at any known temperature; at 60° water dissolves nearly four times its weight, and hot water still more. It is also very soluble in alcohol. During its solution much cold is produced; and, if snow be used, a freezing mixture capable of lowering the thermometer from 32° to —50° is obtained. The fused chloride of calcium consists of one equivalent of each of its elements (Ca + Cl), consequently of 35.42 parts of chlorine, and 20.1 of calcium; and the crystallized chlorate or hydrochlorate of lime contains in addition six equivalents of water (Ca + Cl + 6 aq.) or CaO + Cl H + 5 aq.; that is, 54 parts.

This salt is but little subject to adulteration. The tests of the London College are, "Free from colour; slightly translucent; hard and friable; totally soluble in water; the solution gives no precipitate on the addition of ammonia (showing the absence of magnesia) or chloride of barium; nor, when diluted with much water, with ferrocyanide of potassium (the absence of iron)." The tests of the Edinburgh College for hydrochlorate of lime are, "Extremely deliquescent; a solution of 76 grains in one fluid ounce of distilled water, precipitated by 49 grains of oxalate of ammonia, remains precipitable by more of the test."

"This salt is decomposed by sulphuric acid and by sulphates, by the alkalis, potash, soda, and their carbonates. If ammonia be added to the solution no change occurs; but carbonate of ammonia decomposes it, and precipitates carbonate of lime."

Liquor Calcii Chloridi—*Solution of Chloride of Calcium, L.*—Take of chloride of calcium 4 ounces; distilled water 12 fluid ounces. Dissolve the chloride of calcium, and strain.—*London.*

Calcis Muriatis Solutio—*Solution of Muriate of Lime, E.*—Take of muriate of lime 8 ounces; water 12 fluid ounces. Dissolve the salt in the water.—*Edinburgh.*

Calcis Muriatis Aqua—*Water of Muriate of Lime, D.*—Take of muriate of lime 2 parts; distilled water 7 parts. Dissolve. The specific gravity of this solution is to that of water as 1,202 to 1,000.—*Dublin.*

Liquor Calcii Chloridi—*Solution of Chloride of Calcium, U. S.*—Take of marble, in fragments, 9 ounces; muriatic acid a pint; distilled water a sufficient quantity. Mix the acid with half a pint of the distilled water, and gradually add the marble. Towards the close of the effervescence apply a gentle heat, and, when the action has ceased, pour off the clear liquor, and evaporate to dryness. Dissolve the residuum in its weight and a half of distilled water, and filter the solution.—*United States.*

Calx Chlorinata—*Chlorinated Lime, L.*—Take of hydrate of lime a pound; chlorine as much as may be sufficient. Pass chlorine to the lime, spread in a proper vessel until it is saturated. Chlorine is very readily evolved from hydrochloric acid added to binoxide of manganese with a gentle heat.—Phillips.

Hypochlorite de Chaux Impur—*Impure Hypochlorite of Lime, P.*—Take of quicklime 1,000 parts; binoxide of manganese 750 parts; hydrochloric acid 3,000 parts; water Q.S. Slake the lime with a little water, and, when it has become a pulverulent hydrate, weigh it; if the weight has not increased one third, add sufficient water to bring it to that, and, after a few hours, pass it through a sieve. Spread this slaked lime in thin layers, on shelves placed one over another with a space between each, in a chamber tightly closed, excepting a small aperture at the bottom. Pass into the chamber chlorine gas (produced from the hydrochloric acid and binoxide of manganese), and washed previously by being passed through water. Take care always to prevent too quick a disengagement of gas. Several hours after the production of chlorine has ceased, open the apparatus, mix carefully the different layers of chlorite of lime, and preserve it in well-stopped bottles.—*Paris Codex.*

Hypochlorite de Chaux Liquide—*Solution of Hypochlorite of Lime, P.*—Take of dry chlorite of lime 100 parts; water 4,500 parts. Triturate the chlorite of lime in a marble mortar with a portion of the water; when it is well divided, separate by decantation the finest portions, triturate the remainder; add another portion of water, decant again, and so on until the lime is perfectly divided, and all the water prescribed is employed. Mix the liquors, clarify them by repose or filtration, and preserve in well-stopped bottles in a cool place.—*Paris Codex.*

"Chlorinated lime, hypochlorite of lime, is the chloride of lime or common bleaching powder of commerce. The opinions of chemists vary with respect to its real nature; some, as Berzelius, consider it a chlorite; others, as Balardan, hypochlorite; Turner, and many others, as a chloride; and lastly, a few, Dalton, Thomson, and Witter, as a dichloride of lime."

When hydrochloric acid acts upon binoxide of manganese, the changes that take place are these:—Two equivalents of hydrochloric acid are composed of 2 eqs. of hydrogen = 2, and 2 eqs. of chlorine = 72; 1 eq. of binoxide of manganese consists of 2 eqs. of oxygen = 16, and 1 eq. of manganese = 28; when these act upon each the 2 eqs. of hydrogen combine with the 2 eqs. of oxygen to form 2 eqs. of water, while one of the eqs. of chlorine unites with one eq. of manganese to form chloride of manganese, and the other eq. of chlorine is evolved in the gaseous state, and, being absorbed by the lime, chloride of lime is formed.—Phillips.

"It appears extremely probable that the whole of the lime is not converted into chloride, on account of the deficiency of water; for, when dry chlorine acts upon anhydrous lime, the lime is decomposed, oxygen gas is evolved, and chloride of calcium remains. The advantage derived from adding a little water to the hydrate of lime (as directed in the Paris Codex) was first publicly mentioned by Dr. Ure, who found that one hundred parts of dry slaked lime absorb sixty-five of chlorine, but, if moistened with fifteen parts of water, absorb seventy-five of the gas, and thus yield a much stronger chloride. A still stronger preparation is obtained in the humid way by using milk of lime, which must be kept constantly stirred during the absorption of the gas, to prevent the formation of chloride of calcium."

Chloride of lime, when pure, is white, but it is generally a greyish-white powder; it emits a weak smell of chlorine, and has a bitter, acrid taste. It is only partially soluble in water, some lime being always left undissolved; when exposed to the air, it is gradually decomposed, carbonic acid is absorbed, and chlorine is given off. On the addition of any acid to the solution chlorine is given off; it is, therefore, incompatible with them, and with the alkaline carbonates. It is also decomposed by heat; some chlorine comes over first, and afterwards oxygen derived from the decomposition of lime, chloride of calcium remaining.

Chloride of lime is often of inferior quality either because the lime is from the first insufficiently charged with chlorine, or because it has been carelessly preserved, so that both chloride of calcium and carbonate of lime have been formed under exposure to the air. Various methods have been devised for measuring its quality. The most accurate is that of Gay-Lussac, which consists in ascertaining its power of decolourizing a solution of indigo of given strength. Another method, that of Dalton, ascertains its relative power in peroxidating the green sulphate of iron. A third, more lately suggested by Dr. Ure, determines its relative power of decomposing ammonia. All the chlorimeters, however, which are founded upon such principles are too refined for ordinary pharmaceutic use. The London College has not given any tests of the purity of chloride of lime. The tests of the Edinburgh College are pale greyish-white; dry; 50 grains are nearly all soluble in two fluid ounces of water, forming a solution of the density of 1027, and of which 100 measures treated with an excess of oxalic acid give off much chlorine, and, if then boiled and allowed to rest twenty-four hours, yield a precipitate which occupies nineteen measures of the liquid, but these will not detect chloride of calcium, one of the most common adulterations. Probably the simplest criterion of quality is the amount of chlorine gas evolved by a strong acid, as proposed some years ago by Dr. Ure. The finest chloride which he could prepare gave 51.8 cubic inches of gas from 100 grains.—Christison.

Creta Preparata—*Prepared Chalk, L.*—Take of chalk a pound; water as much as may be sufficient. Add a little water to the chalk, and rub it, that it may become fine powder. Put this into a large vessel with the rest of the water; then stir it, and, after a short interval, pour off the supernatant water, still turbid, into another vessel, and set it by, that the powder may subside; lastly, the water being poured off, dry this powder, and keep it for use.

In the same manner shells, first freed from impurities and washed with boiling water, are prepared.—*London.*

Creta Preparata—*Prepared Chalk, E.*—Take any convenient quantity of chalk. Triturate it well in a mortar with a little water; then pour it into a large vessel nearly full of water, and agitate briskly; allow it to rest for a short time, and pour the milky water into another vessel, in which the fine suspended chalk is to be left slowly to subside; repeat this process with the coarsely-powdered chalk which subsided quickly in the first vessel; collect the fine powder in the second vessel on a filter of linen or calico, and dry it.—*Edinburgh.*

Creta Preparata—*Prepared Chalk, D.*—Take any convenient quantity of chalk. Let it be triturated to powder in an earthen mortar, with the addition of a little water; then mix this with a sufficiently large quantity of water by agitation, and, after a short interval, when the coarser particles have subsided, pour off the fluid. This may be frequently repeated, always previously triturating; and, finally, collect the very fine powder, which after some time will subside, and dry it upon an absorbent stone or paper.—*Dublin.*

Creta Preparata—*Prepared Chalk, U.S.*—Take of chalk a convenient quantity. Add a little water to the chalk, and rub it into a very fine powder. Throw this into a large vessel nearly full of water, stir briskly, and, after a short interval, pour the supernatant liquor, while yet turbid, into another vessel. Repeat the process with the chalk remaining in the first vessel, and set the turbid liquor by, that the powder may subside. Lastly, pour off the water, and dry the powder.—*United States.*

"This method of preparing this variety of carbonate of lime, called chalk, is termed elutriation. By the suspension of the finer particles of the levigated chalk in water, they are reduced to a more impalpable form, and are more effectually separated from the coarser particles, than can be accomplished by any other mechanical means; but the chalk is not freed from the foreign earths it generally contains, although it is sufficiently pure for medicinal use."

Carbonate of lime, in the form of chalk, is a substance with an earthy appearance, pure white colour, no taste, and great friability. It is composed of 43 parts of carbonic acid, 56.5 of lime, and .5 of water in 100 parts. Chalk is scarcely ever a *pure* carbonate of lime. Most even of its finer qualities contain a little silica and alumina, and the coarser qualities oxide of iron. The London College represent it to be entirely soluble in hydrochloric acid. The tests of the Edinburgh College are, "A solution of 25 grains in 10 fluidrachms of pyroligneous acid, when neutralized by carbonate of soda, and precipitated by 32 grains of oxalate of ammonia, continues precipitable after filtration by more of the test." The lime is thrown down by the oxalate of ammonia, and will leave a little lime unprecipitated if there be 90 per cent. of pure carbonate of lime in the chalk; and this slight excess is indicated by adding more oxalate of ammonia to the filtered liquor. Should no precipitate then form, the chalk is unusually impure.

It is incompatible with acids and acidulous salts.

Calcis Carbonas Præcipitatum—*Precipitated Carbonate of Lime, D.*—Take of solution of muriate of lime 5 parts. Add to it as much carbonate of soda, dissolved in three times its weight of distilled water, as may be sufficient to precipitate the chalk. Wash the precipitate three times in a sufficient quantity of water; then collect it, and dry it on a chalk stone, or on bibulous paper.—*Dublin.*

A double exchange takes place in this process: the chlorine separates from the lime and unites with the sodium of the carbonate of soda, while the carbonic acid combines with the lime; the chloride of sodium thus formed remains dissolved in the water, but the carbonate of lime is precipitated in the form of a white powder. It is the Creta Præcip. of the shops, and is principally used for toothpowder.—Thomson.

Calcis Phosphas Præcipitatum—*Precipitated Phosphate of Lime, D.*—Take of burnt bones, rubbed into powder, 1 part; diluted muriatic acid, water, of each 2 parts. Let them be digested together for two hours, and strain the solution; add to it as much caustic ammonia as will throw down the phosphate of lime. Wash the precipitate with much water, and finally dry it.—*Dublin.*

Sulfure de Calcium Impur—*Impure Sulphuret of Calcium, P.*—Take of sublimed sulphur 100 parts; slaked lime 300 parts; water 300 parts. Mix these ingredients well together in an earthen vessel; and boil until a small portion, placed upon a cold surface, becomes solid on cooling; then pour the mass on to a marble slab, and when it has become firm break into small pieces, and put into well-stopped bottles. Pure sulphuret of calcium is prepared by heating strongly in a covered and well-luted crucible a mixture of 100 parts of pure powdered calcined gypsum, and 15 parts of soot.—*Paris Codex.*

Sulfite de Chaux—*Sulphite of Lime, P.*—Take of carbonate of lime (chalk) 1,000 parts; sulphuric acid 1,000 parts; vegetable charcoal Q.S. Powder the charcoal, and mix sufficient with the acid to form a firm paste; introduce this into a glass matras, placed upon a sandbath; adapt a glass rod bent twice at right angles, to conduct the gas into a vessel containing a small quantity of water, that it may be washed; from this arrange a second tube similarly bent, to convey the washed gas to the bottom of a second bottle. The apparatus thus arranged, take some cakes of chalk, steep them a few seconds in water, reduce them to small fragments, and place them in the bottle. Heat then gradually the mixture of acid and charcoal, and sustain the heat until the disengagement of gas ceases. If during the operation the sulphurous gas passes through without being absorbed, add another portion of moist chalk. When the operation is finished, separate the sulphite of chalk from the unsaturated portion; this last is distinguished by its being on the top, its white colour, and little cohesion; whereas the sulphite, on the contrary, has a yellowish-grey colour, and has become hard.—*Parix Codex.*

Preparations of Copper.

Cupri Ammonio-Sulphas—*Ammonio-Sulphate of Copper, L.*—Take of sulphate of copper an ounce; sesquicarbonate of ammonia an ounce and a half. Rub them together until carbonic acid ceases to evolve; then dry the ammonio-sulphate of copper, wrapped in bibulous paper, in the air.—*London.*

Cuprum Ammoniatum—*Ammoniated Copper, E.*—Take of sulphate of copper 2 ounces; carbonate of ammonia 3 ounces. Triturate them thoroughly together till effervescence ceases; wrap the product in blotting paper, and dry it first by folds of blotting paper, afterwards by exposure to the air for a little; and preserve it in closely-stopped bottles.—*Edinburgh.*

Cuprum Ammoniatum—*Ammoniated Copper, D.*—Take of sulphate of copper 2 parts; carbonate of ammonia 3 parts. Rub them in an earthenware mortar until, all effervescence having ceased, they unite into a mass, which is to be dried, wrapped up in bibulous paper, and preserved in a vial closed with a glass stopper.—*Dublin.*

Cuprum Ammoniatum—*Ammoniated Copper, U.S.*—Take of sulphate of copper half an ounce; carbonate of ammonia 6 drachms. Rub them together in a glass mortar till the effervescence ceases; then wrap the ammoniated copper in bibulous paper, and dry it with a gentle heat. Let it be kept in a well-stopped glass bottle.—*United States.*

Sulfate de Cuivre Ammoniacal—*Ammoniacal Sulphate of Copper, P.*—Take of sulphate of copper 100 parts; solution of ammonia Q.S. Reduce the sulphate of copper to fine powder; place it in an earthen vessel, and add sufficient solution of ammonia to dissolve it completely; add then an equal volume of alcohol of specific gravity 837. Let the mixture repose during several hours, decant the liquid, collect the crystalline precipitate, dry it rapidly between the folds of blotting-paper, and preserve in well closed-bottles.—*Paris Codex.*

When sulphate of copper and sesquicarbonate of ammonia are triturated together, brisk effervescence takes place from the disengagement of carbonic acid, the sulphate of copper is partially decomposed, and part of its acid yielded up to the ammonia; at the same time the mass becomes moist from the separation of a part of the water, carbonate of copper is formed, which, in combination with the sulphate of ammonia, and the undecomposed sesquicarbonate of ammonia, form the ammonio-sulphate of copper. In drying it must be very carefully excluded from the light.

According to Berzelius, the substance formed by the process of the Paris Codex is a sulphate of copper and ammonia with water of crystallization, and it is composed of one equivalent of acid, one equivalent of oxide of copper, two equivalents of ammonia, and one equivalent of water. Ammonio-sulphate of copper is a violet-blue crystalline powder, exhaling the odour of ammonia, and possessing a strong, styptic, metallic, coppery taste. By exposure to the air it parts gradually with ammonia, the blue colour is lost, and the salt acquires a greenish hue; when well-prepared, it is soluble in a moderate quantity of water, but if ammonia have escaped from it an insoluble disulphate of copper separates; and the same change takes place even with the wellp-repared compound when its solution is much diluted. It is insoluble in spirit. It consists of one of disulphate of copper = 79.2 + 2 of ammonia = 34.30 + one of water = 9; making the equivalent 122.50.

The tests of the London College are, "By heat it is converted into oxide of copper, evolving ammonia. Dissolved in water, it changes the colour of turmeric, and solution of arsenious acid renders it of a pale green. If it do not alter the colour of turmeric there is no excess of sesquicarbonate of ammonia; and without this it is not totally soluble in water, but is decomposed by it with precipitation. Arsenious acid unites with the oxide of copper to form green arsenite of copper, which, being insoluble in water, is precipitated."

This preparation is incompatible with acids; the alkalis, soda and potash; and with lime water. Copper forms two different compounds with oxygen: the first is of a red colour, and is a *dinoxide* composed of one equivalent of oxygen 8, and two equivalents of copper 64 = 72; this does not yield salts with acids. The *oxide* is black, and consists of one equivalent of oxygen 8, and one equivalent of copper 32 = 40. This combines with the acids to form salts.—Phillips.

Liquor Cupri Ammonio-Sulphatis—*Solution of Ammonio-Sulphate of Copper, L.*—Take of ammonio-sulphate of copper a drachm; distilled water a pint. Dissolve the ammonio-sulphate of copper in the water, and strain.—*London.*

Cupri Ammoniati Solutio—*Solution of Ammoniated Copper, E.*—Take of ammoniated copper one drachm; water one pint. Dissolve the salt in the water, and filter.—*Edinburgh.*

Cupri Ammoniati Aqua—*Water of Ammoniated Copper, D.*—Take of ammoniated copper one part; distilled water 100 parts.

Dissolve the ammoniated copper in the water, and filter through paper.—*Dublin.*

Cupri Subacetatis Preparatum—*Prepared Subacetate of Copper, D.*—Let the subacetate of copper be reduced to powder, and the more subtle parts be separated as directed for the preparation of chalk.—*Dublin.*

Subacetate of copper, verdigris, is obtained by exposing copper to the action of acetic acid under the access of atmospheric air. There are various methods for its preparation. In the south of France the acid is derived from the acetous fermentation of the husks of grapes; in other parts vinegar is sprinkled over the copper; and in this country the usual practice is understood to be to interpose between the metallic plates cloths steeped in pyroligneous acid. In all the processes the copper undergoes oxidation by means of the oxygen contained in the water, or abstracted by means of the water from the atmosphere; and this oxide at the same time unites with the acetic acid. It is a mixture of the crystallized acetate of copper and the subacetate in varying proportions. It is sold either in loosely-agglomerated lumps or in the form of powder. In both states, as seen in this country, it has a pale bluish-green colour, a disagreeable acetous odour, in consequence of the powder, from its tenuity, being carried into the nostrils, and a nauseous, styptic, coppery taste.

Preparations of Iron.

Ferri Sulphas—*Sulphate of Iron, L.*—Take of iron filings 8 ounces; sulphuric acid 14 ounces; water 4 pints. Mix the sulphuric acid with the water, and add the iron to them; then apply heat, and, when bubbles have ceased to escape, strain the liquor, and set it aside, that crystals may be formed. Evaporate the liquor poured off, that it may again yield crystals. Dry them all.—*London.*

Ferri Sulphas—*Sulphate of Iron, E.*—If the sulphate of iron of commerce be not in transparent green crystals, without efflorescence, dissolve it in its own weight of boiling water, acidulated with a little sulphuric acid; filter, and set the solution aside, to crystallize. Preserve the crystals in well-closed bottles.—*Edinburgh.*

Ferri Sulphas—*Sulphate of Iron, D.*—Take of iron wire 4 parts; sulphuric acid 7 parts; water 60 parts. Digest the mixture, that the metal may be dissolved, after which filter the solution through paper; finally, after due evaporation, set it apart, that crystals may form by slow cooling.—*Dublin.*

Ferri Sulphas—*Sulphate of Iron, U.S.*—Take of iron wire, cut in pieces, 12 ounces; sulphuric acid 18 ounces; water a gallon. Mix the sulphuric acid and water, and add the iron; then heat the mixture until effervescence ceases. Pour off the solution, and, having added half a drachm of sulphuric acid, filter through paper, allowing the lower end of the funnel to touch the bottom of the receiving vessel. Evaporate the filtered liquor in a matras until sufficiently concentrated; then set it aside in a covered vessel, to crystallize. Drain the crystals in a funnel, dry them on bibulous paper, and keep them in closely-stopped bottles.—*United States.*

Sulfate de Fer Cristallisé—*Crystallized Sulphate of Iron, P.*—Take of iron filings 1,000 parts; diluted sulphuric acid, sp. gr. 1160, Q.S. Put the acid into a glass or earthen vessel, and add the iron filings to it by degrees until the effervescence has ceased; add an excess of iron filings, and heat to boiling point; concentrate the liquor to sp. gr. 1286, and set aside, that crystals may form on cooling.—*Paris Codex.*

"In these processes part of the water is decomposed; the iron is oxidized by combining with its oxygen, while its hydrogen is dissipated in the gaseous form; and the oxide produced unites with the acid and forms sulphate of iron, or rather sulphate of oxide of iron, which is dissolved in the undecomposed portion of the water. If the acid is not considerably diluted, the action ceases, before neutralization, as soon as all the water which remains is required to dissolve the sulphate already formed. *Concentrated* sulphuric acid scarcely exerts any action on iron at a low temperature, and water alone is very slowly decomposed by it. The Dublin process is preferable to that of the London College, because iron wire is purer from the first than iron filings, while it is also difficult to obtain the latter free from dust and other mixtures. The solution is of a pale green colour, and, if evaporated directly yields crystals of protosulphate of iron. In order to obtain crystals free of sesquioxide of iron, it is necessary that the solution shall always contain a slight excess of sulphuric acid."

Sulphate of iron is inodorous, and possesses a disagreeable, styptic taste. It crystallizes readily, in transparent, rhomboidal prisms; it is soluble in two parts of water at 60°, and in three fourths of its weight of boiling water; insoluble in alcohol; when exposed to the air, it both effloresces slightly and attracts oxygen; so that some sesquioxide forms on its surface, united with sulphuric acid, in the state of a basic salt. When heated it undergoes the watery fusion, and loses six sevenths of its water; the crystals lose their form and fall to powder; a higher heat expels the acid in the form of sulphuric and sulphurous acids, and the oxide remains of a chocolate colour, peroxidated at the expense of a portion of the sulphuric acid. The oxide thus obtained is the old coleathar of vitriol. According to Phillips, the proportions are 28.8 of sulphuric acid; 25.9 of protoxide of iron; and 45.3 of water; or one equivalent of acid, one equivalent of protoxide of iron, and 7 equivalents of water.

Sulphate of iron is decomposed in solution by the earths, the alkalis, and their carbonates, ammonia, lime-water, biborate of soda, phosphate of soda, hydrochlorate of baryta, nitrate of silver, acetate of lead, every salt the base of which forms an insoluble compound with sulphuric acid and soaps, and by all vegetable matters which contain tannin. In the last case a dark bluish black or greenish black forms, the tannate of iron. Ferrocyanide of potassium throws down a pale blue precipitate, which soon acquires a deep blue tint under exposure to the air.

Acetas Ferri—*Acetate of Iron, D.*—Take of carbonate of iron 1 part, acetic acid 6 parts. Digest for three days, and filter.—*Dublin.*

Tinctura Acetatis Ferri—*Tincture of Acetate of Iron, D.*—Take of acetate of potassa 2 parts; sulphate of iron 1 part; rectified spirits of wine 26 parts. Rub together the acetate of potassa and the sulphate of iron in a stoneware mortar until they unite in a soft mass; dry this with a moderate heat, and triturate it with the spirit; then put the mixture into a vial, cork it closely, and digest for seven days, frequently shaking it; finally, pour the clear tincture from off the fæces.—*Dublin.*

Tinctura Acetatis Ferri cum Alcohole—*Tincture of Acetate of Iron with Alcohol, D.*—Take of sulphate of iron, acetate of potassa, each an ounce; alcohol 2 pints. Rub together the acetate of potassa and the sulphate of iron in a stoneware mortar until they unite into a soft mass; then dry this with a moderate heat, and, when it is cold, triturate it with the alcohol. Pour the mixture into a phial, cork it closely, and digest for twenty-hours, frequently shaking; finally, pour off the clear liquor from the fæces.—*Dublin.*

"Acetate of protoxide of iron may be obtained in small, green, prismatic crystals, which readily undergo decomposition if exposed to the air. None, however, of the preparations mentioned above is a pure protacetate. The first of them is a solution of sesquioxide of iron in acetic acid. In the second and third preparations the acetate of iron is formed by double decomposition, the sulphuric acid of the sulphate of iron leaves the iron and unites with the potassa, while the disengaged acetic acid of the latter salt combines with the oxide of iron, forming acetate, which is soluble in the alcohol, leaving the sulphate of potassa undissolved. These, however, are unscientific preparations. One of them must contain acetate of potassa besides acetate of iron, because a large excess of the former salt is used; the decomposing proportions of acetate of potassa and sulphate of iron being as 117 to 130, not as two to one, which are adopted in the formula. Besides, each preparation contains both acetates of iron; for the protoxide must be partially converted into the sesquioxide by exposure to the air during the trituration and subsequent digestion, and a binacetate is formed, which is more readily soluble in the alcohol. It appears that, when equal parts of acetate of potassa and sulphate of iron are used, a permanent solution can be obtained only with the stronger spirit of the density 810; and that, if common rectified spirit be used, the solution is not permanent unless only half as much sulphate of iron be employed."

These preparations have a warm chalybeate taste, and a peculiar odour. They are decomposed by the alkalis and their carbonates, the strong acids, and by infusions of astringent vegetables.

Ferri Ammonio-Chloridum—*Ammonio-Chloride of Iron, L.*—Take of sesquioxide of iron 3 ounces; hydrochloric acid half a pint; hydrochlorate of ammonia 2 pounds and a half; distilled water 3 pints. Mix the sesquioxide of iron with the hydrochloric acid in a proper vessel, and digest them in a sandbath for two hours; afterwards add the hydrochlorate of ammonia, first dissolved in the distilled water; strain, and evaporate all the liquor. Lastly, rub what remains to powder.—*London.*

Ferrum Ammoniatum—*Ammoniated Iron, U.S.*—Take of subcarbonate of iron 3 ounces; muriatic acid 10 fluid ounces; muriate of ammonia 2 pounds and a half; distilled water 4 pints. Mix the subcarbonate of iron with the muriatic acid in a glass vessel, and digest for two hours; then add the muriate of ammonia, previously dissolved in the distilled water, and, having filtered the liquor, evaporate to dryness. Rub the residue to powder.—*United States.*

Fleurs Ammoniacales Martiales—*Ammonio-Chloride of Iron, P.*—Take of protochloride of iron 1 part; hydrochlorate of ammonia 3 parts. Dissolve in the smallest possible quantity of water, evaporate to dryness, and preserve from humidity.—*Paris Codex.*

When muriate of ammonia and muriate of iron are subjected together to a strong heat, they are sublimed in irregular proportion to one another, and a yellow salt is obtained, which was long known by the name of Flores Martiales. The College of London has abandoned the process of sublimation, as producing a substance of irregular composition, and directs that a solution of the two salts in a given proportion shall be simply evaporated to dryness. The product is in all probability nothing more than a mere mixture. At all events, there is no authority whatever for the designation given to it

by the London College, who—if their nomenclature is intended to be scientifically exact—must be held to maintain that this substance is a reguiar double chloride or hydrochlorate. The investigations of Berzelius seem to show that such cannot be the case; for he found that, when a solution of muriate of ammonia and muriate of iron is evaporated till crystallization takes place, ruby-coloured crystals are formed, which contain only three per cent. of the salt of iron; and that, when these crystals are several times dissolved and recrystallized, they contain less and less iron, and at last become pure sal ammoniac.—CHRISTISON.

This preparation is a mixture, according to Phillips, of fifteen per cent. of sesquichloride of iron, and eighty-five per cent. of hydrochlorate of ammonia. It has an odour resembling, in some degree, that of saffron, and a strong chalybeate taste; it is an orange-red colour in crystalline grains; it becomes moist when exposed to the air; it is soluble in two parts of water, and also in alcohol. The tests of the London College are—"Totally soluble in proof spirit and in water. Potash added to the solution throws down sesquioxide of iron; afterwards, when added in excess, it evolves ammonia. The iron of the sesquichloride is precipitated by the action of the potash in the state of sesquioxide; while another portion of this alkali decomposes the hydrochlorate of ammonia, and evolves its ammonia. It yields about seven per cent. of sesquioxide of iron when decomposed by an alkali. It is decomposed by the alkalis and their carbonates, lime-water, and vegetable astringent infusions."

TINCTURA FERRI AMMONIO-CHLORIDI—*Tincture of Ammonio-Chloride of Iron, L.*—Take of ammonio-chloride of iron 4 ounces; proof spirit a pint. Dissolve the ammonio-chloride of iron in the spirit, and strain.—*London.*

A fluid ounce yields by decomposition gr. 5.8 of sesquioxide of iron.

PROTOCHLORURE DE FER—*Protochloride of Iron, P.*—Take of iron turnings 100 parts; hydrochloric acid Q.S. Place the acid in a matras; add to it the iron turnings until it be saturated; boil the solution with an excess of the iron, allow it to deposit some short time, decant the clear portion, and evaporate quickly to dryness.—*Paris Codex.*

PERCHLORURE DE FER—*Perchloride of Iron, P.*—Take of red oxide of iron 100 parts; hydrochloric acid Q.S. Dissolve the oxide in the acid, and evaporate the solution to dryness in a water-bath; place the residue in well-stopped bottles.—*Paris Codex.*

TINCTURA FERRI SESQUICHLORIDI—*Tincture of Sesquichloride of Iron, L.*—Take of sesquioxide of iron 6 ounces; hydrochloric acid a pint; rectified spirit 3 pints. Pour the acid upon the sesquioxide of iron in a glass vessel, and digest for three days, frequently shaking. Lastly, add the spirit, and strain.—*London.*

FERRI MURIATIS TINCTURA—*Tincture of Muriate of Iron, E.*—Take of red oxide of iron 6 ounces; muriatic acid (commercial) 1 pint; rectified spirits 3 pints. Add the oxide to the acid in a glass vessel; digest with a gentle heat, and occasional agitation for a day, or till most of the oxide be dissolved; then add the spirit, and filter.—*Edinburgh.*

MURIATIS FERRI LIQUOR—*Solution of Muriate of Iron, D.*—Take of rust of iron 1 part; muriatic acid, rectified spirits of wine, of each, 6 parts. Put the rust into a glass vessel, pour on the acid, and agitate it occasionally for three days; then set it aside, that the fæces may subside, and pour off the liquor; evaporate this slowly to one pint, and, when it is cold, add the spirit.—*Dublin.*

TINCTURA FERRI CHLORIDI—*Tincture of Chloride of Iron, U.S.*—Take of subcarbonate of iron half a pound; muriatic acid a pint; alcohol 3 pints. Pour the acid upon the subcarbonate of iron, and shake the mixture occasionally for three days; then set it by, that the dregs, if there be any, may subside; lastly, pour off the liquor, and add to this the alcohol.—*United States.*

"Iron unites with chlorine in two proportions, forming a chloride and a sesquichloride or perchloride. The former is a hard, white, shining, scaly substance, exceedingly deliquescent, fusible at a red heat, and volatile at a temperature considerably higher. The sesquichloride forms brown metallic-like scales, which also readily deliquesce, and are so volatile as to sublime at a temperature not much above that of boiling water. When these chlorides are dissolved in water the protochloride forms a green solution, which, under exposure to the air, deposits sesquioxide of iron, and passes to the state of sesquichloride, while the sesquichloride forms a solution of a dark brownish-red tint. Both solutions may be made to yield crystals, and they are considered by some chemists as chlorides with water of crystallization, by others as hydrochlorates of the protoxide and sesquioxide of iron."

The tincture or alcoholic solution of sesquichloride of iron is of a brownish-red colour, and a peculiar ethereal odour; and, though it is essentially composed of sesquichloride of iron, it contains some hydrochloric acid, without which a deposit is apt to be formed in it. Its specific gravity is about 0.992, and a fluid ounce yields, when decomposed by potash, nearly 30 grains of sesquioxide of iron.

It is incompatible with the alkalis and their carbonates; lime-water, carbonates of magnesia and lime; strikes a black colour with infusions of astringent vegetables, and forms with mucilage of acacia an orange-coloured jelly.

FERRI CARBONAS SACCHARATUM—*Saccharine Carbonate of Iron, E.*—Take of sulphate of iron 4 ounces; carbonate of soda 5 ounces; pure sugar 2 ounces; water 4 pints. Dissolve the sulphate and carbonate each in 2 pints of the water; add the solutions, and mix them; collect the precipitate on a cloth filter, and immediately wash it with cold water, squeeze out as much of the water as possible, and without delay triturate the pulp which remains with the sugar previously in fine powder. Dry the mixture at a temperature not much above 120°.—*Edinburgh.*

In preparing the saccharine carbonate of iron, the solutions must not be used hot, otherwise much carbonic acid is disengaged. When well made, the preparation has a dirty bluish-green or greyish-blue colour, which is permanent, at least for a long time, under exposure to the air. It possesses a sweet and strongly chalybeate taste, and dissolves entirely in muriatic acid with brisk effervescence. Fifty grains ought to yield 7.5 cubic inches of gas when decomposed by an acid. The action of the sugar in the saccharine carbonate of iron is somewhat obscure. Klauer supposes that a regular compound is formed between the sugar and the protoxide of iron. My own experiments, though not so uniform or precise in their results as to point out the exact constitution of the compound, tend to show that it contains protoxide and sesquioxide of iron, carbonic acid, sugar, and water. The whole iron is never preserved in the state of carbonate of the protoxide. Klauer found his compound to contain twenty per cent. of sesquioxide, and eighty per cent. of protoxide; and I have never observed the carbonic acid to exceed two thirds of what ought to be present, where the whole iron is in the state of carbonate. It has been alleged that the formation of sesquioxide may be prevented altogether by dissolving the carbonate of soda and sulphate of iron in water sweetened with an ounce of sugar for every pound, washing the precipitate with the same solution, adding honey, and evaporating with a gentle heat to the proper consistence for pills (Vallet).—CHRISTISON.

FERRI FERROCYANURETUM—*Ferrocyanuret of Iron—Pure Prussian Blue, U.S.*—Take of sulphate of iron 4 ounces; sulphuric acid 3½ fluidrachms; nitric acid 6 fluidrachms, or a sufficient quantity; ferrocyanuret of potassium 4½ ounces; water 2 pints. Dissolve the sulphate of iron in a pint of the water, and, having added the sulphuric acid, boil the solution. Pour into it the nitric acid, in small portions, boiling the liquid for a minute or two after each addition, until it no longer produces a dark colour; then allow the liquid to cool. Dissolve the ferrocyanuret of potassium in the remainder of the water, and add this solution gradually to the first liquid, agitating the mixture after each addition; then pour it upon a filter. Wash the precipitate with boiling water until the washings pass tasteless. Lastly, dry it, and rub it into powder.—*United States.*

CYANURE DOUBLE DE FER HYDRATÉ.—*Ferrocyanuret of Iron, P.*—Take of pure sulphate of iron 100 parts; ferrocyanuret of potassium Q.S. Dissolve the iron in sufficient water, and expose it to the air in a large flat vessel, stirring frequently, until the iron is peroxidated; then filter. Dissolve also the ferrocyanide of potassium, and filter; add this solution by degrees to the iron, until nothing more is precipitated by the addition of either solution; agitate the mixture, allow it to deposit; decant; mix the deposit until it is all one uniform colour; and repeat this three or four times daily until it has become an intense blue. Mix then with a large quantity of pure water and place in an upright vessel; decant after twenty-four hours, and repeat the washing until the water comes off clear and tasteless; then pour it on a filter; allow it to drain for several days; press, divide into small portions, and dry with a stove.—*Paris Codex.*

By the reaction of ferrocyanide of potassium a sulphate of the protoxide of iron, sulphate of potash, is formed in solution, and a white precipitate subsides, which, by exposure to the air, becomes blue. With sulphate of the peroxide of iron, ferrocyanuret of potassium, forms sulphate of potash and ferrocyanuret of iron.

This salt was originally discovered by accident, at the commencement of the last century, by Dippel, a celebrated German chemist. In commerce it is procured by calcining one hundred parts of the carbonate of potash of commerce with twenty-five parts of animal charcoal made from blood; horn and other animal matters are next added, and again twenty-five parts of animal charcoal. This mixture is continued in the furnace, and constantly stirred until only a blue flame is given out; it is then taken from the fire and thrown into water, in which, after brisk stirring, it is left at rest. In twenty-four hours the fluid is decanted, evaporated, and crystallized. To a solution of the hydrochlorate of peroxide of iron a solution of the above salt is added, as long as a precipitate is thrown down; the supernatant fluid is then decanted off, and the precipitate, well washed with boiling water, and dried, is prussian blue.—THOMSON.

Prussian blue occurs in masses of a rich dark blue colour, tasteless, inodorous, and much heavier than water; when broken it has

a copper or bronze tint, somewhat like that of indigo, but which is distinguished from that of the latter by its being removed by rubbing with the nail. If exposed to the air, it partly loses its blue colour, and becomes greenish; but again changes to blue when placed in contact with deoxidizing substances. When submitted to a very strong heat it is decomposed, giving out some pure water, then a small quantity of hydrocyanate of ammonia, carbonate of ammonia, and a residue, which, when calcined in a current of air, is oxide of iron. It is insoluble in water, alcohol, and the diluted mineral acids. The strong acids decompose it with a variety of phenomena. Strong sulphuric acid forms with it a white pasty mass, from which water again separates prussian blue. The alkalis also decompose it, forming ferrocyanates. Chemists are not agreed as to its precise nature. But the opinion of Berzelius is most generally adopted, according to which it is a compound of three equivalents of cyanide of iron, and two equivalents of the sesquicyanide of the same metal.—(3 Fe Cy and 2 Fe^2 Cy^3.)

Ferri Iodidum—*Iodide of Iron, L.*—Take of iodine 6 ounces; iron filings 2 ounces; distilled water 4½ pints. Mix the iodine with four pints of the water, and to these add the iron. Heat them in a sandbath, and, when it has acquired a greenish colour, pour off the liquor. Wash what remains with half a pint of water, boiling. Let the mixed and strained liquors evaporate, at a heat not exceeding 212° in an iron vessel, that the salt may be dried. Keep it in a well-stopped vessel, access of light being prevented.—*London.*

Ferri Iodidum—*Iodide of Iron, E.*—Take any convenient quantity of iodine, iron wire, and distilled water in the proportions for making solution of iodide of iron. Proceed as directed for that process; but, before filtering the solution, concentrate it to one sixth of its volume, without removing the excess of iron wire. Put the filtered liquor quickly in an evaporating basin, along with twelve times its weight of quicklime around the basin, in some convenient apparatus in which it may be shut up accurately in a small space not communicating with the general atmosphere. Heat the whole apparatus in a hot-air press, or otherwise, until the water be entirely evaporated; and preserve the dry iodide in small well-closed bottles.—*Edinburgh.*

Ferri Iodidum—*Iodide of Iron, U.S.*—Take of iodine 2 ounces; iron filings an ounce; distilled water a pint and a half. Mix the iodine with a pint of the distilled water in a porcelain or a glass vessel, and gradually add the iron filings, constantly stirring. Heat the mixture gently until the liquid acquires a light greenish colour; then filter, and, after the liquor has passed, pour upon the filter half a pint of the distilled water, boiling hot. When this shall have passed, evaporate the filtered liquor, at a temperature not exceeding 212°, in an iron vessel, to dryness. Keep the dry iodide in a closely-stopped bottle.—*United States.*

Iodure de Fer—*Iodide of Iron, P.*—Take of iron filings 20 parts; iodine 80 parts; water 100 parts. Mix the iron filings with the water, and add gradually the iodine, constantly stirring with an iron spatula; heat the mixture over a water-bath until it acquires the greenish colour proper to the protosalts of iron. Then filter and evaporate quickly to dryness.—*Paris Codex.*

"By boiling iodine and metallic iron together direct union takes place, and a solution of protiodide of iron is obtained; it is of a pale green colour, and, by evaporation with as little contact of air as possible, green tabular crystals may be formed. By evaporation to dryness and heating moderately the salt is fused, and on cooling becomes an opaque crystalline mass of an iron-grey colour and metallic lustre. It has a strong styptic chalybeate taste. It is exceedingly deliquescent; and, if exposed to the air, it undergoes not only deliquescence, but changes in constitution; so that sesquioxide of iron separates, and a dark orange-red solution is formed, containing sesquiodide of iron, and probably some protiodide. The tests of the London College are—'Emits violet vapour by heat, and sesquioxide of iron remains. When fresh prepared it is totally soluble in water. From this solution, when kept in a badly-stopped vessel, sesquioxide of iron is very soon precipitated; but, with iron wire immersed in it, it may be kept clear in a well-stopped vessel. By the action of the oxygen of the air the iron is converted into sesquioxide, which is insoluble in water; by the operation of the metallic iron, without the access of air, the decomposition of the solution is prevented.'"

Iodide or protiodide of iron, according to Phillips, is composed of 1 equivalent of iodine = 126.3, and 1 of iron = 28, making the equivalent = 154.3, or in its crystallized state, owing to the addition of 5 equivalents of water, = 199.3. It is decomposed by the strong acids, chlorine, the alkalis, ammonia, potash, soda, and their carbonates; by lime-water, chloride of calcium, bichloride of mercury, acetate of lead, and all astringent vegetable infusions, and other substances with which iron is incompatible.

Liquor Ferri Iodidi—*Solution of Iodide of Iron, U.S.*—Take of iodine 2 ounces; iron filings an ounce; prepared honey 5 fluid ounces; distilled water a sufficient quantity. Mix the iodine with ten fluid ounces of the distilled water in a porcelain or glass vessel, and gradually add the iron, stirring constantly. Heat the mixture gently until the liquor acquires a light greenish colour; then, having added the honey, continue the heat a short time, and filter. Lastly, pour distilled water upon the filter, and allow it to pass until the whole of the filtered liquor measures twenty fluid ounces. Keep the solution in closely-stopped bottles.—*United States.*

Solution of iodide of iron is of a pale greenish colour, but, on the addition of sulphuric acid, becomes brown, and emits violet vapours if heated. It has little or no sediment, and does not communicate a blue colour to starch.

Ferri Iodidi Syrupus—*Syrup of Iodide of Iron, E.*—Take of iodine (dry) 200 grains; fine iron wire, recently cleaned, 100 grains; white sugar, in powder, 4 ounces and a half; distilled water 6 fluid ounces. Boil the iodine, iron, and water together in a glass matras, at first gently, to avoid the expulsion of iodine vapour, afterwards briskly, until about two fluid ounces of liquid remain. Filter this quickly while hot into a matras containing the sugar; dissolve the sugar with a gentle heat; and add distilled water, if necessary, to make up six fluid ounces. Twelve minims contain one grain of iodide of iron.—*Edinburgh.*

The addition of sugar to a newly-made solution of protiodide of of iron renders the solution permanent. In the above process the solution, when just completed, is filtered at once into pounded sugar, and immediately converted into a concentrated syrup. When dried up either spontaneously or in the vapour-bath, the saccharine iodide is not entirely soluble again, but leaves a little sesquioxide of iron. The change of colour in the syrup under exposure, without precipitate forming, is owing to some sesquioxide of iron being produced, but remaining in a state of union with the protiodide and sugar. The syrup ought to be nearly colourless, or pale yellowish green, and without sediment.

Ferri Oxidum Nigrum—*Black Oxide of Iron, E.*—Take of sulphate of iron 6 ounces; sulphuric acid (commercial) 2 fluidrachms and 2 fluid scruples; pure nitric acid 4½ fluidrachms; stronger aqua ammoniæ 4½ fluid ounces; boiling water 3 pints. Dissolve half the sulphate in half the boiling water, and add the sulphuric acid; boil, add the nitric acid by degrees, boiling the liquid after each addition briskly for a few minutes. Dissolve the rest of the sulphate in the rest of the boiling water; mix thoroughly the two solutions, and immediately add the ammonia in a full stream, stirring the mixture at the same time briskly. Collect the black powder on a calico filter; wash it with water till the water is scarcely precipitated by solution of nitrate of baryta; and dry it at a temperature not exceeding 180°.—*Edinburgh.*

Ferri Oxidum Nigrum—*Black Oxide of Iron, D.*—Let the scales of the black oxide of iron found at the anvil of the blacksmith be purified by the application of the magnet. Then reduce them to a powder, the finest parts of which are to be separated in the manner ordered for the preparation of chalk.—*Dublin.*

Oxide Noir de Fer—*Black Oxide of Iron, P.*—Take of iron filings, clean and pure, any convenient quantity. Place them in an earthen vessel; perfectly and uniformly moisten them with just sufficient water, so that it does not drain off when the vessel is inclined Stir the mixture a little and leave it to the action of the air; the mass gradually becomes warm. Stir it then with a spatula, to multiply its points of contact with the air; and add sufficient water to replace that which evaporates. All this operation is accompanied with the production of heat and the disengagement of hydrogen gas. After three or four days' exposure the oxidation ceases, and the mass becomes cold. Place it then in an iron mortar, and triturate well, that the oxide may be separated from the metallic iron; place upon a strainer, and wash with plenty of water until it ceases to pass through black, and the iron filings alone remain. Agitate the water and decant rapidly, that all the oxide may be removed from the heavier portion at the bottom of the vessel which contains pieces of iron, and is to be placed with the iron filings to undergo oxidation over again; place the oxide then upon a cloth, allow it to drain, and press; dry it quickly and perfectly between bibulous paper, to prevent further oxidation, which would ensue were it exposed to the air in a damp state.—*Paris Codex.*

Black oxide of iron of the Edinburgh College is a mixture of the two oxides of iron chemically combined. According to Wöhler, it is composed of two equivalents of protoxide of iron, one of sesquioxide, and two of water, and consequently of seventy-two parts of the former oxide, forty of the latter, and eighteen water. The tests of the Edinburgh Pharmacopœia are—"Dark greyish black, strongly attracted by the magnet; heat expels water from it; muriatic acid dissolves it entirely; and ammonia precipitates a black powder from this solution." The blacksmiths' scales of the Dublin Pharmacopœia appear, from the researches of Berzelius and Mosander, to consist of one or more analogous compounds, in which the oxides are united in proportions, somewhat different from those existing in magnetic iron ore; and the chemical constitution of the scales is variable. The process of the Paris Codex was devised by Guibourt; it is a compound, according to Berzelius, of the two oxides contained in magnetic iron ore, together with a little hydrated sesquioxide.

Ferri Sesquioxidum—*Sesquioxide of Iron, L.*—Take of sulphate of iron 4 pounds; carbonate of soda 4 pounds 2 ounces; water, boiling, 6 gallons. Dissolve the sulphate of iron and carbonate of soda separately in three gallons of water; then mix the liquors together, and set them by, that the powder may subside. Lastly, the supernatant liquor being poured off, wash what is precipitated with water, and dry it. —*London.*

Ferri Oxidum Rubrum—*Red Oxide of Iron, E.*—Take of sulphate of iron 4 ounces; carbonate of soda 5 ounces; boiling water half a pint; cold water 3½ pints. Dissolve the sulphate in the boiling water, add the cold water, and then the carbonate of soda, previously dissolved in about thrice its weight of water. Collect the precipitate on a calico filter; wash it with water till the water is but little affected with solution of nitrate of baryta; and dry it in the hot-air press or over the vapour-bath.—*Edinburgh.*

Ferri Oxidum Rubrum—*Red Oxide of Iron, D.*—Let dried sulphate of iron be exposed to heat until the water of crystallization be expelled; then let it be roasted in a strong fire as long as any acid vapour is produced. Let the red oxide be washed till the water poured from it does not indicate, by the test of litmus, the presence of any acid; and, lastly, dry it upon bibulous paper.—*Dublin.*

Ferri Subcarbonas — *Subcarbonate of Iron, U.S.*—Take of sulphate of iron 8 ounces; carbonate of soda 9 ounces; boiling water a gallon. Dissolve the sulphate of iron and carbonate of soda severally in four pints of the water; then mix the solutions, and, having stirred the mixture, set it by, that the powder may subside; lastly, having poured off the supernatant liquor, wash the subcarbonate of iron with hot water, wrap it in bibulous paper, and dry it with a gentle heat.—*United States*

Oxide Rouge de Fer—*Red Oxide of Iron, P.*—Take of pure sulphate of iron any convenient quantity. Dry the salt, and then heat it in an earthen crucible until no more vapours are disengaged; withdraw from the fire, and wash the product with boiling water, until it passes pure; dry and preserve for use.—*Paris Codex.*

When sulphate of soda and carbonate of iron are mixed, double decomposition takes place. The carbonic acid of the carbonate combines with the oxide of iron of the sulphate, and, the carbonate of iron formed being insoluble in water, it is precipitated; the soda of the carbonate unites with the sulphuric acid of the sulphate of iron, and the sulphate of soda resulting, being soluble, remains in solution. The formation of the carbonate or protocarbonate of iron is the first step in the process; during the washing which is necessary to get rid of the sulphate of soda, and especially by the subsequent exposure to the air whilst drying, the protoxide of iron acquires oxygen, and loses carbonic acid, and thus becomes sesquioxide of iron.—Phillips.

When sulphate of iron is subjected to a gradually increasing heat, it parts first with its water of crystallization; then the sulphuric acid is partly driven off in a highly concentrated state, and partly decomposed; sulphurous acid being disengaged, and the oxide more highly oxidized. The residue, when freed from any undecomposed sulphate by washing, is the old colcathar of vitriol, a pure sesquioxide of iron, of a dark chocolate colour.

Sesquioxide, red oxide, or subcarbonate of iron, is a reddish-brown powder of a chalybeate taste, inodorous, insoluble in water, and not readily dissolved by any acid except the hydrochloric. The article met with in the shops varies somewhat in constitution, which probably depends on the following circumstance. If boiling water be used in the mutual decomposition of the salts, as the London College directs, and the precipitate be heated a little above 212° in drying it, the product contains some black, or ferroso-ferric, oxide; for it is feebly attracted by the magnet. But there is neither carbonic acid nor water present. If the heat in drying it do not exceed 140°, the product, besides being somewhat magnetic, contains combined water, and a small though sensible proportion of carbonic acid. If, again, the salts be mixed in the state of cold solution, as in the Edinburgh formula, the precipitate, in whatever way it may be dried, contains no black oxide, and only a trace of carbonic acid, while the presence of combined water depends, as in the former case, on the temperature used in drying it.—Christison.

The tests of the London College are—"Dissolved totally by dilute hydrochloric acid with very slight effervescence, and it is precipitated by ammonia. The effervescence denotes the presence of a small unimportant portion of carbonic acid; after the precipitation of the sesquioxide of iron by ammonia, neither hydrosulphuric acid nor ferrocyanide of potassium should produce any change in the solution."

Ferrugo—*Hydrated Sesquioxide of Iron, E.*—Take of sulphate of iron 4 ounces; sulphuric acid (commercial) 3½ fluidrachms; nitric acid (*D.* 1,380) 9 fluidrachms; stronger aqua ammoniæ 3½ fluid ounces; water 2 pints. Dissolve the sulphate in the water, add the sulphuric acid, and boil the solution; add then the nitric acid in small portions, boiling the liquid for a minute or two after each addition, until it acquires a yellowish-brown colour, and yields a precipitate of the same colour with ammonia. Filter, allow the liquid to cool, and add in a full stream the aqua ammoniæ, stirring the mixture briskly. Collect the precipitate on a calico filter, wash it with water till the washings cease to precipitate with nitrate of baryta, squeeze out the water as much as possible, and dry the precipitate at a temperature not exceeding 180°. When this preparation is kept as an antidote for poisoning with arsenic, it is preferable to preserve it in the moist state, after being simply squeezed.—*Edinburgh.*

Ferri Rubigo—*Rust of Iron, D.*—Take of iron wire any quantity. Cut it into small pieces, which are to be exposed to the air, and frequently moistened with water, until they be converted into rust; let this be rubbed in an iron mortar, and, by pouring water on it, wash over the finest part of the powder, which is to be dried.—*Dublin.*

Ferri Oxidum Hydratum—*Hydrated Oxide of Iron, U.S.*—Take of sulphate of iron 4 ounces; sulphuric acid 3½ fluidrachms; nitric acid 6 fluidrachms, or a sufficient quantity; water 2 pints. Dissolve the sulphate of iron in the water, and, having added the sulphuric acid, boil the solution; then add the nitric acid, in small portions, boiling the liquid for a minute or two after each addition, until the acid ceases to produce a dark colour. Filter the liquid, allow it to cool, and add solution of ammonia in excess, stirring the mixture briskly. Wash the precipitate with water until the washings cease to yield a precipitate with chloride of barium, and keep it in close bottles with water sufficient to cover it.—*United States.*

Peroxide de Fer Hydraté—*Hydrated Peroxide of Iron, P.*—Take of purified sulphate of iron 1,000 parts; sulphuric acid, sp. gr. 1840, 200 parts; water 4,000 parts; nitric acid sufficient quantity. Dissolve the sulphate of iron in the water, and add to it the sulphuric acid; heat it to boiling point in an earthen vessel; add the nitric acid to the solution by small portions at a time, and, when the gas produced by each addition has disappeared, add another small quantity of acid, and so on, till no more red vapours are given forth; this indicates that the iron has passed to the state of peroxide. Allow it to cool, and add about thirty times its weight of water; precipitate then the oxide of iron by adding ammonia in excess. Wash the gelatinous red precipitate in a very large quantity of water; drain the product on a cloth, and dry it with the ordinary temperature. When the oxide of iron is employed as an antidote for arsenic, it should be given in the gelatinous state; it should be kept, consequently, in this state for use.—*Paris Codex.*

In these processes green vitriol, the sulphate of the protoxide, is converted into the sulphate of the sesquioxide by means of nitric acid, aided by heat. The nitric acid is decomposed, nitric oxide gas passes off, and part of the oxygen of the acid unites with the protoxide of iron. As there is too little sulphuric acid in the protosulphate to maintain the iron in solution when it passes to the state of sesquioxide, an insoluble basic salt would be thrown down; but this is prevented by adding the necessary proportion of sulphuric acid to form the sulphate of the sesquioxide, namely, half the amount of acid contained in the green vitriol employed. In subsequently decomposing the sulphate by ammonia, care must be taken to add the ammonia in excess, and at once; otherwise a basic sulphate is apt to be thrown down instead of the sesquioxide.

When thus prepared, the hydrated sesquioxide is a yellowish-brown powder, much more easily soluble in acids, especially in diluted acids, than the same oxide in its anhydrous state. If it has been properly prepared, without being exposed to too much heat in the process of drying, it gives off water freely on being heated in a tube, and then presents the characters of the anhydrous sesquioxide. According to Berzelius, rust of iron contains 14.7 per cent. of water, which would make its constitution approach closely to two equivalents of sesquioxide and three of water. The hydrate obtained by precipitating the muriate of the sesquioxide by ammonia consists, according to Turner, of one equivalent of sesquioxide and two of water, that is, eighty parts of the former, and eighteen of the latter; and such appears, from my own experiments, to be also the composition of what is obtained by the process of the Edinburgh College from the sulphate. This hydrate possesses the important property of immediately removing arsenious acid from solution in water when agitated with it, and an insoluble arseniate of iron seems to be formed. The anhydrous sesquioxide has no such property.—Christison.

Ferri Potassio—Tartras Potassio—*Tartrate of Iron, L.*—Take of sesquioxide of iron 3 ounces; hydrochloric acid half a pint; solution of potash 4½ pints, or as much as may be sufficient; bitartrate of potash 11½ ounces; solution of sesquicarbonate of ammonia a pint, or as much as may be sufficient; distilled water 3 gallons. Mix the sesquioxide of iron with the acid, and digest for two hours in a sand-bath. Add to these two gallons of the water, and set aside for an hour; then pour off the supernatant liqour. The solution of potash being added, wash what is precipitated frequently with water, and, while moist, boil it with the bitartrate of potash, previously mixed with a gallon of the water. If the liquor should be acid when tried by litmus, pour into solution of sesquicarbonate of ammonia until it is saturated. Lastly, strain the liquor, and, with a gentle heat, let it evaporate, so that the salt may dry.—*London.*

Ferri Tartarizatum—*Tartrate of Potash and Iron, E.*—Take of

sulphate of iron 5 ounces; bitartrate of potash 5 ounces and 1 drachm; carbonate of ammonia, in fine powder, a sufficiency. Prepare the rust of iron from the sulphate as directed under Ferrugo, and without drying it. Mix the pulpy mass with four pints of water; add the bitartrate of potash; boil till the rust of iron is dissolved; let the solution cool; pour off the clear liquid, and add to this the carbonate of ammonia so long as it occasions effervescence. Concentrate the liquid over the vapour-bath to the consistence of a thick extract, till the residuum becomes on cooling a firm solid, which must be preserved in well-closed vessels.—*Edinburgh.*

Tartarum Ferri—*Tartar of Iron, D.*—Take of iron wire 1 part; bitartrate of potassa, in very fine powder, 4 parts; distilled water 8 parts, or as much as may be requisite. Let them be put into a flat vessel, and exposed to the air for fifteen days, stirring the mixture, and adding some water daily, so as to keep the iron humid, but not so much as to cover it. Finally, boil it in a sufficient quantity of distilled water, and evaporate the filtered solution to dryness in a water-bath. The tartrate of iron must be kept in a well-stopped bottle.—*Dublin.*

Ferri et Potassæ Tartras—*Tartrate of Iron and Potassa, U.S.*—Take of subcarbonate of iron 3 ounces; muriatic acid 10 fluid ounces; solution of potassa 5½ pints; bitartrate of potassa 7½ ounces; distilled water a gallon and a half. Mix the subcarbonate of iron with the muriatic acid, and digest for two hours; then pour the solution into a gallon of the distilled water, set aside for an hour, and pour off the supernatant liquor. To this add the solution of potassa, wash the precipitate which is formed frequently with water, and, while it is yet moist, mix it with the bitartrate of potassa and half a gallon of the distilled water. Keep the mixture at the temperature of 140° for thirty hours, frequently stirring; then filter the solution, and evaporate by means of a water-bath, at the same temperature, to dryness.—*United States.*

Tartrate de Potasse et de Fer—*Potassio-Tartrate of Iron, P.*—Take of bitartrate of potassa 100 parts; pure water 600 parts; hydrated peroxide of iron sufficient quantity. Dissolve the bitartrate of potash in the water, and heat to boiling point in a silver, glass, or porcelain vessel; add the peroxide of iron by degrees until it ceases to be dissolved. Filter, and evaporate to dryness with a gentle heat.—*Paris Codex.*

When hydrated sesquioxide of iron is boiled with bitartrate of potassa, the excess of acid which this salt contains dissolves the oxide, and a solution of the double tartrate is formed. Any little excess of acid is neutralized by carbonate of ammonia. According to the Dublin method, when iron filings and bitartrate of potassa are kept constantly moist and exposed to the air, the iron is converted into the sesquioxide, partly by the oxygen of the air, and partly by the decomposition of water; and the sesquioxide at the same time unites with one half of the acid of the bitartrate, forming a double tartrate.

Potassio-tartrate of iron is a greenish-brown powder; inodorous, of a faintly chalybeate, sweetish, somewhat alkaline taste. It is uncrystallizable; deliquescent, and very soluble in water; slightly soluble in rectified spirit, and more so in proof spirit or vinous fluids. All its solutions differ remarkably from the other solutions of chalybeate salts, in possessing but a faint chalybeate taste, and in not being decomposed by the addition of either alkalis or alkaline carbonates, unless with the aid of heat. Acids do not decompose it. It gives a dark-coloured precipitate with astringent vegetables, but does not afford a blue precipitate with ferrocyanate of potassium. According to Soubeiran, this double salt contains 13 per cent. of sesquioxide of iron. According to Phillips, it consists of one equivalent of tartrate of potash 114, and one equivalent of tartrate of sesquioxide of iron 106, which gives rather more than 18 per cent. of sesquioxide of iron.

Ferri Phosphas—*Phosphate of Iron, U.S.*—Take of sulphate of iron 5 ounces; phosphate of soda 6 ounces; water a gallon. Dissolve the sulphate of iron and phosphate of soda severally in four pints of the water; then mix the solutions, and set the mixture by, that the powder may subside; lastly, having poured off the supernatant liquor, wash the phosphate of iron with hot water, and dry it with a gentle heat.—*United States.*

Phosphate of iron is insoluble in water, but is dissolved by dilute hydrochloric acid, forming a solution which yields with ammonia a precipitate soluble in an excess of that akali.

Ferri Sulphuretum—*Sulphuret of Iron, E.*—The best sulphuret of iron is made by heating an iron rod to a full white heat in a forge, and rubbing it with a roll of sulphur over a deep vessel filled with water to receive the fused globules of sulphuret which form. An inferior sort, good enough, however, for pharmaceutic purposes, is obtained by heating one part of sublimed sulphur and three of iron filings in a crucible in a common fire till the mixture begins to glow, and then removing the crucible and covering it, until the action, which at first increases considerably, shall come to an end.—*Edinburgh.*

Sulfure de Fer—*Sulphuret of Iron, P.*—Take of iron filings 6 parts; sulphur 4 parts. Mix thoroughly, place in a crucible, and heat gently; a brisk reaction takes place, sulphurous vapours are disengaged, and the temperature is considerably increased. When the action has ceased increase the heat until the sulphuret is liquefied; remove the crucible from the fire, and pour the contents upon a stone; reduce it to fine powder in an iron mortar.—*Paris Codex.*

There are several sulphurets of iron, but only one in the Pharmacopœias, namely, the protosulphuret. The sulphuret, however, which is obtained by the college processes is not a pure protosulphuret. It contains an excess of iron, especially that which is prepared from iron filings. It is obtained of greater purity by applying a rod of sulphur to a rod of iron heated to a white heat in a blacksmith's forge. For the success of this process it is essential that the iron be raised to a full white heat. At a lower temperature the sulphur is merely fused on its surface; but if the heat be high enough the two bodies unite, with the emission of brilliant sparks, and the sulphuret falls down in a fused and incandescent state. On being received into water as it falls, brownish-yellow globules are obtained, which have a somewhat crystalline texture. Both forms of the protosulphuret of iron are easily known by dissolving in diluted sulphuric acid, with brisk effervescence from the escape of sulphuretted hydrogen gas, and with the formation of the protosulphate of iron. This is the surest method of obtaining a pure sulphate of the protoxide, because the evolution of sulphuretted hydrogen prevents the formation of any sesquioxide. The pure protosulphuret of iron is composed of one equivalent of each element, and, consequently, of 28 parts of metal and 16.1 of sulphur.—Christison.

Preparations of Mercury.

Hydrargyri Acetas—*Acetate of Mercury, D.*—Take of purified mercury 9 parts; diluted nitric acid 9 parts; acetate of potassa 9 parts; boiling distilled water 100 parts; distilled vinegar a sufficiency. Add the acid to the mercury; and, after effervescence ceases, digest the mixture so as to dissolve the metal. Dissolve the acetate in the water, and acidulate the solution with the vinegar. To this, while boiling hot, add the solution of mercury in nitric acid, and filter through a double cloth quickly. Set the filtered fluid aside to crystallize, wash the crystals with cold distilled water, and dry them on paper with a gentle heat. Glass vessels must be used throughout this process.—*Dublin.*

Acetate of protoxide of mercury forms thin foliaceous crystals, of a pearly lustre, and colourless. It has a strong unpleasant metallic taste. It is decomposed, and becomes gradually black, under exposure to light. It is also decomposed by a moderate heat, and a higher temperature dispels it entirely. It is very sparingly soluble in cold water; and boiling water partly dissolves and partly decomposes it—a portion being converted into acetate of the peroxide, and dissolved along with the acetate of the protoxide, while some metallic mercury is disengaged. Alcohol does not act upon the salt without heat; and boiling alcohol decomposes it. Its hot aqueous solution crystallizes regularly, and free of any peroxide existing in solution along with it, because the acetate of that oxide is much more soluble in cold water. Its solution is precipitated black by all the alkalis, while that of the nitrate of the peroxide is precipitated yellow by potash and soda. It probably consists of one equivalent of each constituent, and, consequently, 210 parts of oxide and 51.48 of acid.—Christison.

Hydrargyri Ammonio-Chloridum—*Ammonio-Chloride of Mercury, L.*—Take of bichloride of mercury 6 ounces; distilled water 6 pints; solution of ammonia 8 fluid ounces. Dissolve the bichloride of mercury, with the application of heat, in the water. To this, when it is cold, add the solution of ammonia, frequently stirring. Wash the powder thrown down until it is free from taste; lastly, dry it.—*London.*

Hydrargyri Precipitatum Album—*White Precipitated Mercury, E.*—Take of corrosive sublimate 6 ounces; distilled water 6 pints; aqua ammoniæ 8 fluid ounces. Dissolve the corrosive sublimate with the aid of heat in the distilled water; and, when the solution is cold, add the aqua ammoniæ; stir the whole well; collect the powder on a calico filter, and wash it thoroughly with cold water.—*Edinburgh.*

Hydrargyri Submurias Ammoniatum—*Ammoniated Submuriate of Mercury, D.*—Add to the fluid which has been poured off from the precipitated calomel a quantity of water of caustic ammonia sufficient to precipitate the whole of the metallic salt. Wash the precipitate with cold distilled water, and dry it upon bibulous paper.—*Dublin.*

Hydrargyrum Ammoniatum—*Ammoniated Mercury, U.S.*—Take of corrosive chloride of mercury 6 ounces; distilled water a gallon; solution of ammonia 8 fluid ounces. Dissolve the corrosive chloride of mercury in the water, with the aid of heat, and to the solution, when cold, add the solution of ammonia, frequently stirring. Wash the precipitate till it becomes tasteless, and dry it.—*United States.*

Oxichlorure Ammoniacal de Mercure—*Ammonio-Chloride of Mercury, P.*—Take of corrosive sublimate 100 parts; distilled water 2,000 parts; solution of ammonia Q.S. Dissolve the corrosive sublimate in the cold distilled water; filter the solution, and add the ammonia by little at a time, until it ceases to precipitate. Wash the precipitate carefully, and dry it.—*Paris Codex.*

"When ammonia is added to bichloride of mercury, it appears, from the experiments of Dr. Kane, that half the chlorine is separated, and the whole of the mercury thrown down, combined, consequently, with only so much chlorine as reduces it to the state of protochloride, and this is united with ammonia. The fluid which the Dublin College orders to be used holds the bichloride in solution."

"The ammonio chloride of mercury is a snowy-white powder, smooth, inodorous, insipid. It is insoluble in water; but boiling water, or long-continued washing with cold water, renders it yellow, by resolving it into muriate of ammonia and peroxide of mercury. It is dissolved by the sulphuric, nitric, and hydrochloric acids, the latter of which restores it to the state of soluble bichloride, the sal alembroth of the old chemists. The caustic alkalis resolve it into alkaline muriates, peroxide of mercury, and ammonia. Its nature and composition are still doubtful. The most probable view is that the constituents are present to the amount of two equivalents of each, and that they are so united as to constitute a compound of one equivalent of bichcloride and one equivalent of binamide of mercury, and, consequently, of 272.84 parts of bichloride, and 235.8 parts of binamide."

This preparation is not subject to adulteration. The tests of the London College are—"Totally evaporated by heat. When digested with acetic acid, iodide of potassium throws down nothing either yellow or blue. The powder rubbed with lime-water does not become black. It is totally dissolved by hydrochloric acid without effervescence. When heated with solution of potash it becomes yellow, and emits ammonia. If it contain any fixed impurity, it would not be evaporated by heat. The non-production of a yellow or blue colour by iodide of potassium in the acetic solution shows that it contains neither oxide of lead nor starch; for the oxide would yield a yellow iodide of lead, and the starch would give a blue precipitate. If lime-water imparts blackness to it, it would indicate the presence of protoxide of mercury. If it dissolve without effervescence in hydrochloric acid, no carbonate of lime or other carbonate has been mixed with it. There is no other white substance which, when heated with potash, yields ammonia and becomes yellow."

Hydrargyri Bichloridum—*Bichloride of Mercury, L.*—Take of mercury 2 pounds; sulphuric acid 3 pounds; chloride of sodium a pound and a half. Boil down the mercury with the sulphuric acid in a proper vessel, until the bisulphate of mercury remains dry; rub this when it is cold with the chloride of sodium in an earthen mortar; then sublime with a heat gradually raised.—*London.*

Sublimatus Corrosivus—*Corrosive Sublimate, E.*—Take of mercury 4 ounces; sulphuric acid (commercial) 2 fluid ounces and 3 fluidrachms; pure nitric acid half a fluid ounce; muriate of soda 3 ounces. Mix the acids; add the mercury; dissolve it with the aid of a moderate heat; and then raise the heat so as to obtain a dry salt. Triturate this thoroughly with the muriate of soda; and sublime in a proper apparatus.—*Edinburgh.*

Hydrargyri Murias Corrosivum—*Corrosive Muriate of Mercury, D.*—Take of persulphate of mercury 5 parts; dried muriate of soda 2 parts. Rub the salts together to a fine powder in an earthenware mortar; then sublime the corrosive sublimate in a proper vessel, with a gradually raised heat, into a receiver.—*Dublin.*

Hydrargyri Chloridum Corrosivum—*Corrosive Chloride of Mercury, U. S.*—Take of mercury 2 pounds; sulphuric acid 3 pounds; chloride of sodium a pound and a half. Boil the mercury with the sulphuric acid until the sulphate of mercury is left dry. Rub this, when cold, with the chloride of sodium, in an earthenware mortar; then sublime with a gradually increasing heat.—*United States.*

Deutochlorure de Mercure—*Bichloride of Mercury, P.*—Take of mercury 500 parts; sulphuric acid (commercial) 600 parts; chloride of sodium 550 parts; peroxide of manganese 150 parts. Proceed in the same way as in preparing calomel by sublimation.—*Paris Codex.*

"Corrosive sublimate may be prepared both by sublimation and in the moist way by crystallization. It is obtained in the latter mode by decomposing a hot concentrated solution of nitrate of peroxide of mercury with muriatic acid so long as a precipitate forms, and then boiling the whole with as much additional muriatic acid as was added in the first instance, upon which the precipitate is redissolved, and corrosive sublimate crystallizes on cooling. This, however, is not an economical mode of preparing it. Two processes by sublimation are in use. The one, somewhat similar to that of the Paris Codex, consists of heating ten parts of mercury with eight of muriate of soda, six of black oxide of manganese, and eleven of sulphuric acid diluted with eight of water, until no more liquid condenses in the upper part of the vessel; and then raising the temperature sufficiently to sublime the corrosive sublimate which forms. In this process two equivalents of chlorine are disengaged by the action of the sulphuric acid on the salt and oxide of manganese; and the chlorine in its nascent state coming in contact with the mercury, it unites with one equivalent of the metal, so that bichloride of mercury is at once formed. A different process more generally followed in this country has been adopted by the various colleges, which consists in heating bisulphate of mercury along with chloride of sodium. According to the old doctrine, the muriatic acid leaves the soda, and combines with the oxide of mercury of the bisulphate, while the sulphuric acid unites with the soda, thus forming muriate of mercury and sulphate of soda, the former of which, being easily volatilized, is separated from the latter by sublimation. But, according to the present generally received doctrines, the chlorine of the common salt leaves the sodium, and, uniting with the mercury of the bisulphate, forms a bichloride of mercury, which sublimes; while the oxygen of the oxide of mercury combining with the sodium converts it into soda, which, uniting with the sulphuric acid and forming sulphate of soda, remains in the bottom of the cucurbit. Sixteen ounces of mercury should yield about twenty of corrosive sublimate."

Corrosive sublimate is usually sold in the form of a translucent, white crystalline mass, very brittle, and about 5.2 in density. It is inodorous, and has a very acrid, disagreeable, metallic taste, which remains long in the mouth. On exposure to the air the mass effloresces on the surface. Heat fuses and then sublimes it. Water at 60° dissolves one twentieth of its weight; at 212°, one third. It is much more soluble in ether and alcohol than in water, alcohol dissolving one half and ether a third of its weight; and hence it may be removed in a great measure from an aqueous solution by agitation with ether. Sulphuric acid has no action on it; and nitric and muriatic acids, even aided by heat, merely dissolve it. The fixed alkalis and alkaline earths decompose it, precipitating it from its solution of an orange-yellow colour, which becomes brick red. It is partially decomposed by exposure to light in contact with organic bodies, and changed into calomel It is composed, according to Phillips, of 2 eq. of chlorine = 72, and one of mercury = 202. It is seldom adulterated. The tests of the London College are—"It liquefies by heat and sublimes. It is totally soluble in water and sulphuric ether. Whatever is thrown down from water, either by solution of potash or lime-water, is of a reddish colour; or, if a sufficient quantity be added, it is yellow; this yellow substance by heat emits oxygen, and runs into globules of mercury; whatever remains after exposure to heat is an impurity. If it contain chloride of mercury it is insoluble in water. The yellow substance precipitated by potash is hydrated binoxide of mercury, which, when heated, loses water and oxygen, and metallic mercury remains, or may be dissipated by increasing the heat." The tests of the Edinburgh College—"It sublimes entirely by heat; and its powder is entirely and easily soluble in sulphuric ether."

It is incompatible with ammonia, potash, soda, and their carbonates; lime-water, potassio-tartrate of antimony, nitrate of silver, the acetates of lead, sulphuret of potassium, hydrosulphates, soaps, many metals, infusions of bitter and astringent vegetables, camomile flowers, horseradish-root, calumba-root, catechu, cinchona-bark, rhubarb-root, senna leaves, simarouba bark, oak bark, tea. Animal fluids decompose the solution, and an insoluble substance falls down, which, though considered by some to be a protochloride of mercury and animal principles, is more probably a compound of the animal principles with bichloride itself. Solutions of albumen and casein are the most powerful agents of this class.

Liquor Hydrargyri Bichloridi—*Solution of Bichloride of Mercury, L.*—Take of bichloride of mercury, hydrochlorate of ammonia, each 10 grains; distilled water a pint. Dissolve the bichloride of mercury and hydrochlorate of ammonia together in the water.—*London.*

Deutochlorure de Mercure en Solution.—*Solution of Bichloride of Mercury, P.*—Take of bichloride of mercury 1 part; distilled water 900 parts; rectified alcohol 100 parts. Dissolve the corrosive sublimate in the alcohol, and add the distilled water.—*Paris Codex.*

This solution should not be kept long or exposed to a clear light, as the bichloride is gradually decomposed, and calomel precipitated.

Hydrargyri Chloridum—*Chloride of Mercury, L.*—Take of mercury 4 pounds; sulphuric acid 3 pounds; chloride of sodium a pound and a half; distilled water as much as may be sufficient. Boil two pounds of the mercury with the sulphuric acid in a proper vessel, until the bipersulphate remains dry; rub this when it is cold with the remaining two pounds of mercury in an earthen mortar, that they may be perfectly mixed. Afterwards add the chloride of sodium, and rub them together, until globules are no longer visible; then sublime. Rub the sublimate to very fine powder, and wash it carefully with boiling distilled water, and dry it.—*London.*

Calomelas—*Calomel, E.*—Take of mercury 8 ounces; sulphuric acid (commercial) 2 fluid ounces and 3 fluidrachms; pure nitric acid half a fluid ounce; muriate of soda 3 ounces. Mix the acids, add four ounces of the mercury, and dissolve it with the aid of a moderate heat. Raise the heat so as to obtain a dry salt. Triturate this with the muriate of soda and the rest of the mercury till the globules entirely disappear. Heat the mixture by means of a sandbath in a proper subliming apparatus. Reduce the sublimate to fine powder; wash the powder with boiling distilled water until the water ceases to precipitate with solution of iodide of potassium; and then dry it.—*Edinburgh.*

CALOMELAS SUBLIMATUM—*Sublimed Calomel, D.*—Take of persulphate of mercury 25 parts; purified mercury 17 parts; muriate of soda, dried, 10 parts. Rub them together till the globules disappear; and sublime with a sufficient degree of heat. Let the sublimed matter be rubbed to powder, and again sublimed. Pulverize it, and wash it with frequent effusions of distilled water, until the poured-off solution no longer lets any sediment fall on the addition of a few drops of carbonate of kali. Finally dry it.—*Dublin.*

HYDRARGYRI CHLORIDUM MITE—*Mild Chloride of Mercury, U.S.*—Take of mercury 4 pounds; sulphuric acid 3 pounds; chloride of sodium a pound and a half; distilled water a sufficient quantity. Boil two pounds of the mercury with the sulphuric acid, until the sulphate of mercury is left dry. Rub this, when cold, with the remainder of the mercury, in an earthenware mortar, until they are thoroughly mixed. Then add the chloride of sodium, and rub it with the other ingredients till all the globules disappear; afterwards sublime. Reduce the sublimed matter to a very fine powder, and wash it frequently with boiling distilled water, till the washings afford no precipitate with the addition of solution of ammonia; then dry it.—*United States.*

PROTOCHLORURE DE MERCURE PAR SUBLIMATION—*Protochloride of Mercury by Sublimation, P.*—Take of mercury 500 parts sulphuric acid, sp. gr. 1847, 600 parts; chloride of sodium 550 parts. Boil the mercury with the acid in a proper vessel, until the sulphate is left dry; allow it to cool for some time, then add the chloride of sodium, and mix exactly. Sublime very carefully.—*Paris Codex.*

PROTOCHLORURE DE MERCURE PAR PRECIPITATION—*Calomel by Precipitation, P.*—Take of mercury 1,000 parts; nitric acid 1,500 parts. Dissolve the mercury in the acid, and leave the solution for two or three days. Then separate the liquor from the crystals; allow them to drain; bruise them in an earthen vessel and pour on them warm water acidulated with nitric acid; stir with a glass rod, decant the liquor, add another quantity of acidulated water to what remains, and so on till all is dissolved; mix the solutions and add hydrochloric acid in slight excess, that all may be precipitated. Allow it to deposit, wash the precipitate well several times, the last time with warm water. Lastly, dry it. The first liquor decanted from the crystals contains a mixture of proto and deuto nitrate of mercury, and can be used for the preparation of red precipitate.—*Paris Codex.*

"When mercury and sulphuric acid are boiled together, the metal is converted into bipersulphate, which, when rubbed as directed with a quantity of mercury equal to that which it already contains, we may consider as forming with it protosulphate of mercury, or neutral sulphate of the protoxide; for the first portion of mercury yields half its oxygen to the second portion, and both become protoxide, and combine with the sulphuric acid. The addition of a little nitric acid, which was first recommended by the Dublin College, and is now adopted by that of Edinburgh also, facilitates the oxidation and solution of the metal, and diminishes the quantity of sulphuric and sulphurous acids, which must be afterwards driven off. When this is sublimed in conjunction with the common salt, a double decomposition takes place; the chloride of sodium unites with the mercury in equal equivalents, and forms the chloride; whilst the oxygen combines with the sodium, forming soda, which combines with the sulphuric acid, forming sulphate of soda. As, in subliming calomel, a small portion is always decomposed, the sublimate in the preceding process is never quite pure, but contains a little mercury and a little corrosive sublimate. The former rises first, and either condenses a part on the upper portion of the vessel, or is found between the vessel and the outer surface of the cake of calomel, from which it may easily be detached. The presence of a little corrosive sublimate renders it necessary to wash the calomel with care. For this purpose the London and Edinburgh Colleges recommend boiling distilled water, while the Dublin College advises common water without heat. The method of performing the process of washing is by no means a matter of indifference. Many spring waters, and among those the waters of Edinburgh, promptly decompose calomel if poured over it hot; converting it partially into corrosive sublimate and metallic mercury, the former of which is dissolved. The Dublin College is right, therefore, in ordering spring water to be used without heat. Boiling distilled water produces the same effect far more feebly; and if it be poured on the calomel cold, and then heated to ebullition, it scarcely exerts any appreciable action, since the colour of the calomel remains unchanged, and the filtered fluid merely becomes brownish on the addition of protochloride of tin, without yielding a precipitate. The method of washing by distilled water and ebullition is clearly preferable to the method advised by the London College, because corrosive sublimate is by no means easily soluble in cold water. An important point in the preparation of calomel is to obtain it in a state of very fine division. An ingenious method proposed not long ago by Mr. Jewel for attaining this object at the moment of sublimation consists in receiving the vapour in water. Afterwards, M. Henry, of Paris, found that the same purpose may be accomplished by admitting the vapour into an atmosphere of steam; and this method is now practised by English manufacturers. It seems to have been with the view of obtaining calomel at once in a state of very fine division that the process of precipitation was proposed as a substitute for the ordinary method by sublimation. According to Geiger, the surest way to obtain calomel in this mode, free of impurity, is to dissolve nitrate of protoxide of mercury, with the aid of a sufficiency of nitric acid, in sixteen parts of water, to add to this a solution of chloride of sodium in ten parts of water so long as a precipitate continues to form, to wash the precipitate immediately with cold water, and to dry it with a gentle heat in a dark place. It is probably preferable, however, for avoiding the risk of the deposition of a basic nitrate, to use an excess of chloride of sodium, and to pour the solution of nitrate of mercury into the solution of the chloride, instead of adding the chloride to the solution of the mercurial salt."

Calomel prepared by sublimation is a dull, white, semitransparent, crystalline mass; the powder when formed at once during sublimation is snow white, but that obtained by powdering the solid mass is slightly yellowish. It becomes dark by exposure to light. It is inodorous, insipid, and almost insoluble in water, requiring 1,152 parts of water at 212° for its solution; it is insoluble in alcohol or ether. It is composed of one equivalent of chlorine 36, and one equivalent of mercury 202.

Calomel is commonly supposed to be very much adulterated; the chief impurities to be kept in view are corrosive sublimate, sal ammoniac, and fixed white powders. The tests of the London College are—"A whitish powder, which on the addition of potash becomes black, and then, when heated, runs into globules of mercury. It is also totally vaporized by heat. The distilled water with which it has been washed, or in which it has been boiled, gives no precipitate with nitrate of silver, lime water, nor hydrosulphuric acid: chloride of mercury yields protoxide of that metal by potash, which is black, and this, by being heated, loses oxygen, and is reduced to metallic mercury. If by heat it be totally vaporized, it contains no fixed impurity. If it contain bichloride of mercury, that would be dissolved by water; and from this solution nitrate of silver would throw down chloride of silver, lime-water, yellowish binoxide of mercury, and hydrosulphuric acid, a sulphuret of mercury. The tests of the Edinburgh College are—"Heat sublimes it without any residuum; sulphuric ether agitated with it, filtered, and then evaporated to dryness, leaves no crystalline residuum, and what residuum may be left is not turned yellow with aqua potassæ." A boiling temperature should not be applied in acting on the calomel with water; for, as explained before, pure calomel will in that case impart some bichloride to the water; and the silver test and the hydrosulphuric acid will act as if corrosive sublimate had been present."

Chloride of mercury is immediately, at least partially, decomposed by ammonia; by potash, soda, and lime, protoxide of mercury being precipitated; carbonate of ammonia also produces decomposition, but the carbonate of soda and potash act less rapidly; bicarbonate of potash does not decompose it at all. By nitric acid it is partially converted into bichloride. It is decomposed by iron, copper, and lead, and also by hydrosulphuric acid and its salts.—PHILLIPS.

HYDRARGYRI BICYANIDUM—*Bicyanide of Mercury, L.*—Take of percyanide of iron 8 ounces; binoxide of mercury 10 ounces; distilled water 4 pints. Boil them together for half an hour, and strain. Evaporate the liquor, that crystals may be formed. Wash what remains frequently with boiling distilled water, and again evaporate the mixed liquors, that crystals may be formed. Bicyanide of mercury may be otherwise prepared by adding as much binoxide of mercury as will accurately saturate it to hydrocyanic acid distilled from ferrocyanide of potassium with diluted sulphuric acid.—*London.*

HYDRARGYRI CYANURETUM—*Cyanuret of Mercury, D.*—Take of cyanuret of iron 6 parts; nitric oxide of mercury 5 parts; distilled water 40 parts. Mix together the cyanuret of iron and the oxide of mercury, then add the water heated. Boil the mixture for half an hour, constantly agitating it, and filter through bibulous paper. Wash the residue with hot distilled water. Finally, evaporate the liquor, so that, when filtered and cooled, crystals may form.—*Dublin.*

HYDRARGYRI CYANURETUM—*Cyanuret of Mercury, U.S.*—Take of ferrocyanuret of iron 4 ounces; red oxide of mercury 3 ounces, or a sufficient quantity; distilled water 3 pints. Put the ferrocyanuret of iron and three ounces of the oxide of mercury, previously powdered and thoroughly mixed together, into a glass vessel; and pour upon them two pints of the distilled water. Then boil the mixture, stirring constantly; and, if at the end of half an hour the blue colour remain, add small portions of the oxide of mercury, continuing the ebullition until the mixture becomes of a yellowish colour; after which filter it through paper. Wash the residue in a pint of the distilled water, and filter as before. Mix the solutions, and evaporate till a pellicle appears; then set the liquor aside, that crystals may form. To purify the crystals, dissolve them in distilled water, filter and evaporate the solution, and set it aside to crystallize.—*United States.*

When percyanide of iron and binoxide of mercury are boiled together in water, they act upon each other, though neither of them are insoluble in it. The reactions which occur in preparing this compound are, that the cyanogen quits the iron to combine with the

mercury, forming bicyanide of mercury, which is dissolved; on the other hand, the iron left by the cyanogen takes the oxygen which the mercury has quitted, and forms with it a mixture of protoxide and sesquioxide of iron, which remains insoluble. In the second method mentioned for preparing bicyanide of mercury, the changes are between hydrocyanic acid and binoxide of mercury; two equivalents of the acid decompose one equivalent of the oxide, and the results are bicyanide of mercury and water.—PHILLIPS.

Bicyanide of mercury is a nearly colourless salt, with a disagreeable, metallic, corrosive taste; soluble in water at 60°, and more so at 212°. It is insoluble in alcohol, and soluble in nitric acid without decomposition. It is composed of two equivalents of cyanogen and one equivalent of mercury.

It is incompatible with sulphuric, hydrochloric, and hydrosulphuric acids, sulphurets, and hydrosulphates.

The tests of the London College are—"Transparent and totally soluble. The solution, when hydrochloric acid is added, emits hydrocyanic acid, which is known by its peculiar odour; and a glass moistened with the solution of nitrate of silver, and placed over it, gives a deposit which is dissolved by boiling nitric acid. By heat it emits cyanogen, and runs into globules of mercury. Bichloride of mercury remains after the action of hydrochloric acid upon the bicyanide. Whatever is not volatilized by heat is an impurity.

HYDRARGYRI CUM CRETA—*Mercury with Chalk, L.*—Take of mercury 3 ounces; prepared chalk 5 ounces. Rub them together until globules are no longer visible.—*London.*

HYDRARGYRI CUM CRETA—*Mercury with Chalk, E.*—Take of mercury 3 ounces; prepared chalk 5 ounces. Triturate them together until globules are no longer visible.—*Edinburgh.*

HYDRARGYRI CUM CRETA—*Mercury with Chalk, D.*—It is prepared in the same way as the mercury with magnesia, only instead of carbonate of magnesia employing precipitated chalk.—*Dublin.*

HYDRARGYRI CUM CRETA—*Mercury with Chalk, U.S.*—Take of mercury 3 ounces; prepared chalk 5 ounces. Rub them together till all the globules disappear.—*United States.*

HYDRARGYRUM CUM MAGNESIA—*Mercury with Magnesia, D.*—Take of mercury, manna, of each 2 parts; carbonate of magnesia 1 part. Triturate the mercury with the magnesia in an earthen mortar, adding as many drops of water as will give to the mixture the thickness of syrup, and continue the rubbing until the metallic globules completely disappear; then add, still triturating, one eighth part of the carbonate of magnesia; and, after the whole is well mixed together, add sixteen parts of hot water, and agitate the mixture. Allow the mixture to remain for some time at rest, in order that the sediment may subside, from which the fluid is to be decanted. Repeat the washing a second and a third time, that the whole of the manna may be removed, and add the remainder of the magnesia to the sediment while it is still moist. Finally, dry the powder upon bibulous paper.—*Dublin.*

In these processes it is supposed the mercury becomes partly oxidized during the trituration. The addition of manna is intended only to facilitate the oxidizement, and therefore it is afterwards removed by the subsequent washings. A little water rubbed up with the chalk facilitates the process.

Mercury is a white brilliant metal, which differs from all others in being fluid at common temperatures, and remaining so till exposed to a cold of 40° below Zero; it then becomes solid and malleable. At 60° its specific gravity is 13.5; it boils and vaporizes about 670° Fahr. It is readily acted upon by nitric acid, whether concentrated or dilute, but sulphuric acid has no action upon it except when concentrated and boiling; hydrochloric acid does not produce any effect upon it under any circumstances. It sometimes occurs in its native or metallic state, but usually combined with sulphur, forming native cinnabar or the bisulphuret of mercury.—PHILLIPS.

HYDRARGYRI IODIDUM—*Iodide of Mercury, L.*—Take of mercury an ounce; iodine 5 drachms; alcohol as much as may be sufficient. Rub the mercury and iodine together, adding the alcohol gradually until globules are no longer visible. Dry the powder immediately with a gentle heat, without the access of light, and keep in a well-stopped vessel.—*London.*

HYDRARGYRI IODIDUM—*Iodide of Mercury, U.S.*—Take of mercury an ounce; iodine 5 drachms; alcohol a sufficient quantity. Rub the mercury and iodine together, adding sufficient alcohol to form a soft paste, and continue the trituration till the globules disappear. Then dry the iodide in the dark, with a gentle heat, and keep it in a well-stopped bottle from which the light is excluded.—*United States.*

PROTO-IODURE DE MERCURE—*Proto-Iodide of Mercury, P.*—Take of mercury 100 parts; iodine 62 parts; rectified alcohol Q.S. Triturate the mercury and iodine together in a stone mortar, adding sufficient alcohol to form them into a soft mass. Continue the trituration until the mercury has entirely disappeared. Then dry the proto-iodide in a stove, free from light, and preserve in well-stopped bottles.—*Paris Codex.*

Proto-iodide or iodide of mercury is a greenish-yellow powder; devoid of smell; insoluble both in water and alcohol, and sparingly so in solution of iodide of potassium. It is permanent in the air unless exposed to light, which renders it dark. Heat fuses and sublimes it about the same temperature; and it condenses in red crystals, which afterwards become yellow. It is composed of one equivalent of iodine 126, and one equivalent of mercury 202.

HYDRARGYRI BINIODIDUM—*Biniodide of Mercury, L.*—Take of mercury an ounce; iodine 10 drachms; alcohol as much as may be sufficient. Rub the mercury and iodine together, adding the alcohol gradually until globules are no longer visible. Dry the powder with a gentle heat, and keep it in a well-stopped vessel.—*London.*

HYDRARGYRI BINIODIDUM—*Biniodide of Mercury, E.*—Take of mercury 2 ounces; iodine 2 ounces and a half; concentrated solution of muriate of soda a gallon. Triturate the mercury and iodine together, adding occasionally a little rectified spirit till a uniform red powder be obtained. Reduce the product to fine powder, and dissolve it in the solution of muriate of soda with the aid of brisk ebullition. Filter, if necessary, through calico, keeping the furnace hot; wash and dry the crystals which form on cooling.—*Edinburgh.*

HYDRARGYRI IODIDUM RUBRUM—*Red Iodide of Mercury—Biniodide of Mercury, U.S.*—Take of corrosive chloride of mercury an ounce; iodide of potassium 10 drachms; distilled water 2 pints. Dissolve the chloride of mercury in a pint and a half, and the iodide of potassium in half a pint, of the distilled water, and mix the solutions. Collect the precipitate upon a filter, and, having washed it with distilled water, dry it with a moderate heat, and keep it in a well-stopped bottle.—*United States.*

DEUTO-IODURE DE MERCURE—*Biniodide of Mercury, P.*—Take of bichloride of mercury 80 parts; iodide of potassium 100 parts. Dissolve separately the bichloride of mercury and the iodide of potassium in a large quantity of water, and mix the two liquors; filter and wash the precipitate well with distilled water; dry it with a gentle heat, and preserve it in well-stopped bottles free from light.—*Paris Codex.*

Mercury unites with iodine in three proportions, forming an iodide, a sesquiodide, and a biniodide. The biniodide may be formed either by direct combination of its elements, or by double decomposition of a solution of iodide of potassium and a solution of pernitrate or bichloride of mercury. When mercury and iodine are triturated together according to the formulas of the colleges, the mercury is speedily extinguished, considerable heat is disengaged, and a red loosely aggregated solid substance is formed, which is biniodide of mercury. Certain precautions, however, are indispensable for success. If the materials be used dry, the heat disengaged is great, and the mixture at length, in general, fulminates, and is dispersed. To prevent this accident add a little rectified spirit from time to time during trituration. Even with that precaution the heat evolved is considerable; so that, if so large a quantity as a few ounces of each ingredient be used at once, some iodine is always evaporated, and fulmination may ensue. If, again, the iodine be moist, as generally happens, and the due allowance be not made for the moisture, so that the iodine is not in the proper atomic proportion to the mercury, the product contains some yellow sesquioxide, and the colour is not of the due degree of brightness. But, if the materials be used quite pure and in due proportion, if small quantities only be triturated at one time, and if the mixtnre be kept slightly moist with spirit till union be effected, a pure biniodide of a bright carmine-red colour is obtained. Still, the process is one of some nicety, and the product commonly contains more or less sesquioxide and protiodide. Hence, the Edinburgh College recommends that it shall be purified by solution in boiling brine and crystallization. The biniodide of mercury is soluble in forty parts of strong brine at the boiling temperature, while the two other iodides are insoluble in that menstruum; and, when the solution cools, the biniodide is deposited almost entirely in splendid crimson acicular crystals.—CHRISTISON.

Biniodide of mercury is of a red-carmine colour. It is insoluble in water, sparingly soluble in alcohol, but very soluble in various saline solutions, among which the solutions of iodide of potassium and bichloride of mercury are the most remarkable. Although a *boiling* solution dissolves it so freely, a mere trace only is retained on cooling. It is composed of one equivalent of mercury 202, and two equivalents of iodine 252.

The tests of the London College are—"By heat cautiously applied it is sublimed in scales, which soon become yellow, and afterwards, when they are cold, red. It is partially soluble in boiling rectified spirit, which affords crystals as it cools. It is alternately dissolved and precipitated by iodide of potassium and bichloride of mercury. It is totally soluble in chloride of sodium." The tests of the Edinburgh College are—"Entirely vaporizable; soluble entirely in forty parts of a concentrated solution of muriate of soda at 212°; and again deposited in fine red crystals on cooling."

NITRATE DE MERCURE CRISTALLISÉ—*Crystallized Protonitrate of Mercury, P.*—Take of pure mercury 1,000 parts; nitric acid, sp. gr. 1320, 1,000 parts. Mix the mercury and the acid, and allow the action to proceed in a cool place. After twenty-four hours remove the crystals which have formed, place them in a glass funnel, and wash them with a little dilute nitric acid to remove the mother liquor which adheres to them. Allow them to drain, and preserve them in well-stopped bottles.

These crystals are composed of 82.40 of protoxide of mercury, 14.08 of nitric acid, and 3.52 of water. It is precipitated white by water, and is entirely dissolved in water acidulated with nitric acid.—*Paris Codex.*

Deutonitrate Acide de Mercure Liquide—*Acid Solution of Deutonitrate of Mercury, P.*—Take of mercury 100 parts; nitric acid, sp. gr. 1320, 200 parts. Dissolve the mercury in the nitric acid, and evaporate the solution until it is reduced to three fourths.—*Paris Codex.*

Protonitrate Ammoniaco-Mercuriel—*Ammonio-Nitrate of Mercury, P.*—Take of crystallized protonitrate of mercury 100 parts; solution of ammonia Q.S. Triturate the crystals of nitrate of mercury with water feebly acidulated with nitric acid; pour into this, drop by drop, without interruption, the solution of ammonia, diluted with from fifteen to twenty times its weight of water; stir with a glass rod, and cease to add the alkali as soon as the precipitate varies in colour. Allow the precipitate to deposit, pour off the supernatant liquor, and wash it well with distilled water; receive it upon a filter, and dry without access of light.—*Paris Codex.*

Hydrargyri Nitrico-Oxydum—*Nitric Oxide of Mercury, L.*—Take of mercury 3 pounds; nitric acid a pound and a half; distilled water 2 pints. Mix them in a proper vessel, and apply a gentle heat until the mercury is dissolved. Boil down the liquor, and rub what remains to powder. Put this into another very shallow vessel; then apply a slow fire, and gradually increase it until red vapours cease to arise.—*London.*

Hydrargyri Oxydum Rubrum—*Red Oxide of Mercury, E.*—Take of mercury 8 ounces; diluted nitric acid (D. 1280) 5 fluid ounces. Dissolve half of the mercury in the acid with the aid of a moderate heat; and continue the heat until a dry salt is formed. Triturate the rest of the mercury with the salt until a fine uniform powder be obtained; heat the powder in a porcelain vessel, and constantly stir it till acid fumes cease to be discharged.—*Edinburgh.*

Hydrargyri Oxydum Nitricum—*Nitric Oxide of Mercury, D.*—Take of purified mercury 2 parts; diluted nitrous acid 3 parts. Dissolve the mercury, and let heat be applied until the dried matter be converted into red scales.—*Dublin.*

Hydrargyri Oxydum Rubrum—*Red Oxide of Mercury, U.S.*—Take of mercury 36 ounces; nitric acid 14 fluid ounces; water 2 pints. Dissolve the mercury with a gentle heat in the acid and water previously mixed together, and evaporate to dryness. Rub the dry mass into powder, and heat it in a very shallow vessel till red vapours cease to rise.—*United States.*

Oxide Rouge de Mercure—*Red Oxide of Mercury, P.*—Take of mercury 1000 parts; nitric acid, sp. gr. 1320, 1,000 parts. Dissolve the mercury in the acid with the aid of a gentle heat, and evaporate to dryness; increase the heat until no more nitrous vapours are disengaged. Allow the product to cool before it is removed from the matras.—*Paris Codex.*

When mercury is dissolved in dilute nitric acid part of the acid is decomposed into nitric oxide gas and oxygen. If the operation be performed in an open vessel the nitric oxide gas combines with the oxygen of the atmospheric air to produce nitrous acid gas, while the azotic gas of the air is left unacted upon. The oxygen of the decomposed nitric acid combines with the mercury to form oxide or protoxide of mercury, which the undecomposed nitric acid unites with to form protonitrate of mercury, and this is, by evaporation, reduced to dryness. When this protonitrate of mercury is heated in an open vessel it is decomposed; the nitric acid is separated into nitric oxide gas, and the oxygen of the decomposed nitric acid combines with the protoxide of mercury from which the nitric acid is expelled, and they form binoxide of mercury, the hydrargyri nitrico-oxydum P. L. —Phillips.

Nitric oxide of mercury is of a bright red colour, and has a crystalline appearance. It possesses the same constitution as the binoxide of mercury; its incompatibles and tests are therefore similar.

Hydrargyri Oxydum—*Oxide of Mercury, L.*—Take of chloride of mercury an ounce; lime-water a gallon. Mix and frequently shake them. Set by, and, when the oxide has subsided, pour off the liquor. Lastly, wash it in distilled water until nothing alkaline can be perceived, and dry it, wrapped in bibulous paper, in the air.—*London.*

Hygrargyri Oxydum Nigrum—*Black Oxide of Mercury, D.*—Take of sublimed calomel 1 part; hot solution of caustic potassa 4 parts. Rub them together; the oxide acquires a black colour; then wash it well with water, and dry it, in a moderate heat, on bibulous paper.—*Dublin.*

Hydrargyri Oxydum Nigrum—*Black Oxide of Mercury, U.S.*—Take of mild chloride of mercury, potassa, each 4 ounces; water a pint. Dissolve the potassa in the water, and, when the dregs shall have subsided, pour off the clear solution. To this add the chloride of mercury, and stir them constantly together till the black oxide is formed. Having poured off the supernatant liquor, wash the black oxide with distilled water, and dry it with a gentle heat.—*United States.*

"In the London process the lime-water decomposes the calomel, and is itself decomposed; its calcium unites with the chlorine of the chloride, whilst its oxygen combines with the mercury, and the insoluble protoxide remains; the chloride of calcium which is formed is removed by washing. In the Dublin and United States' formulæ the alkaline solution yields the oxygen required in the same manner as the lime-water in the London process. In these processes it is essential that the decomposing base be constantly in excess, and that heat be not employed; otherwise the powder contains little protoxide, but a mixture of peroxide and mercury. Hence the calomel should be added to the lime-water or potash, and not conversely; there should be so much of the decomposing base as to leave a decided excess at the close; and the employment of heat recommended by the Dublin College is injudicious unless it be very gentle and carefully regulated."

This preparation is an impalpable, heavy, blackish-grey-coloured powder, without taste or odour, becoming paler if exposed to light or air, and is exceedingly prone to decomposition under the action of heat, even so low as that of boiling water. It is insoluble in water and the alkalis, but dissolves readily in acetic or dilute nitric acid; it decomposes, and is decomposed by hydrochloric acid, which reconverts it to chloride of mercury, with the formation of water. It is composed of one equivalent of oxygen 8, and one equivalent of mercury 202.

Oxide of mercury is frequently impure: the most frequent adulteration is peroxide of mercury. The tests of the London College are—"Digested for a short time with diluted hydrochloric acid and strained, neither solution of potash nor oxalate of ammonia throws down anything. It is totally soluble in acetic acid. By heat it is entirely dissipated: if the oxide of mercury be pure, it is totally converted by hydrochloric acid into protochloride, which remains insoluble. If it contain any binoxide, it will be dissolved by the acid and precipitated from solution of an orange colour by potash; and, if during its preparation any carbonate of lime should have been precipitated with the oxide of mercury, it will be dissolved by the hydrochloric acid, and precipitated as an insoluble oxalate by the oxalate of ammonia. If it contain undecomposed chloride of mercury, it will remain after the action of the acetic acid; and anything which is not evaporated by heat is an impurity."

Hydrargyri Binoxydum—*Binoxide of Mercury, L.*—Take of bichloride of mercury 4 ounces; solution of potash 28 fluid ounces; distilled water 6 pints. Dissolve the bichloride of mercury in the water; strain, and add the solution of potash. The liquor being poured off, wash, in distilled water, the powder thrown down, until nothing alkaline can be perceived, and dry it with a gentle heat.—*London.*

Hydrargyri Oxydum Rubrum—*Red Oxide of Mercury, D.*—Take of purified mercury any quantity. Put it into an open vessel with a narrow mouth and a broader bottom, and expose it to a heat of about 600°, until it be converted into red scales.—*Dublin.*

Binoxide, deutoxide, or peroxide of mercury may be prepared in three different ways—by the slow oxidation of mercury under the united influence of heat and atmospheric air; by decomposition of the nitrate of mercury under the action of heat; and by decomposing corrosive sublimate through means of the superior affinity of potash for its chlorine. The first is scarcely ever practised except for curiosity merely, because the long period of a month or upwards is required to complete it. It consists in subjecting mercury to a subliming heat in a vessel with a flat bottom and tall narrow neck open at top, so that the metallic vapours fall back into the body of the vessel as fast as they condense, while the air is at the same time constantly renewed. The mercury, in the course of its repeated sublimations, becomes oxidated at the expense of the oxygen of the air, and at length greyish-red scales are slowly formed. The oxide thus prepared was formerly called the red precipitate *per se*, and was conceived to possess advantages over the common red precipitate prepared by decomposing the nitrate. The third method for preparing the binoxide of mercury is by decomposing the solution of corrosive sublimate by means of caustic potash. If the bichloride of mercury be viewed as dissolving in the form of hydrochlorate of peroxide of mercury, then the potash must be considered as combining with the hydrochloric acid, so as to disengage the peroxide, which falls down in the form of a yellow powder. This, according to Berzelius, is a hydrated oxide; and, when dried at a moderate heat, it parts with its water, and becomes the orange-coloured anhydrous peroxide. For the success of this method it is necessary that the potash be always in excess; otherwise a basic salt may be thrown down along with the oxide, and impart to it a brownish tint.—Christison.

"Binoxide of mercury, by the London process, is obtained in the form of a deep orange-yellow powder; but by the Dublin it is in minute, crystalline, very brilliant, sparkling, deep red scales; inodorous, and acrid to the taste. It is sparingly soluble in water; readily soluble in nitric, hydrochloric, acetic, and hydrocyanic acids. It undergoes reduction when mixed with fatty matters. This is exemplified in the red precipitate ointment, which passes gradually from a bright scarlet colour to greyish red, and eventually to bluish grey. When rubbed with running mercury both are converted into black oxide; and when heated to ignition in a glass retort it is

decomposed, very pure oxygen being obtained, while the metal returns to the state of running mercury. It is composed of two equivalents of oxygen 18, and one equivalent of mercury 202."

It is not much subject to adulteration. The tests of the London College are—"On the application of heat it yields oxygen, and the mercury either runs into globules, or is totally dissipated. It is entirely soluble in hydrochloric acid: when it is dissolved in nitric acid no precipitate is yielded by nitrate of silver; or if there be any, either it has not been sufficiently washed, or the bichloride of mercury has been imperfectly decomposed, and, consequently, precipitates the silver of the nitrate of silver as a chloride." The Edinburgh College—"Entirely soluble in muriatic acid; heat decomposes and sublimes it entirely in metallic globules, without any discharge of nitrous fumes."

It is incompatible with acids and acidulous salts, hydrosulphuric acid, and hydrosulphates.

HYDRARGYRI PERSULPHAS—*Persulphate of Mercury, D.*—Take of purified mercury, sulphuric acid, of each, 6 parts; nitric acid 1 part. Let the mixture be exposed to heat in a glass vessel, gradually increasing the heat, until the matter, when nearly dry, acquires a white colour.—*Dublin.*

In this process the nitric acid is decomposed, its oxygen combines with the mercury, forming it into a binoxide, which in its turn unites with the sulphuric acid, and forms a persulphate. It is white in fine crystalline plates, or in prismatic needles; is soluble in 500 parts of cold, and 250 of boiling, water. It consists of one proportion of binoxide of mercury 216, and two proportions of sulphuric acid 80.2, making the equivalent 296.2.

SULPHURICUM OXYDUM HYDRARGYRI—*Sulphuric Oxide of Mercury—Sub-sulphate of Mercury—Turbith-Mineral, D.*—Take of persulphate of mercury 1 part; boiling water 20 parts. Rub them together in an earthenware mortar, and pour off the supernatant fluid; wash the yellow powder with hot distilled water as long as the droppings of a little solution of caustic potassa into the affused fluid cause a precipitate; finally, dry the sulphuric oxide of mercury which remains.—*Dublin.*

HYDRARGYRI SULPHAS FLAVUS—*Yellow Sulphate of Mercury—Turpeth-Mineral, U.S.*—Take of mercury 4 ounces; sulphuric acid 6 ounces. Mix them in a glass vessel, and boil by means of a sandbath till a dry white mass remains. Rub this into powder, and throw it into boiling water. Pour off the supernatant liquor, and wash the yellow precipitated powder repeatedly with hot water; then dry it.—*United States.*

SOUS-DEUTO SULFATE DE MERCURE—*Subsulphate of Mercury—Turbith-Mineral, P.*—Take of persulphate of mercury 100 parts; boiling water 1,500 parts. Mix the persulphate of mercury, previously dried and powdered, with the water, in an earthen vessel, stirring continually to facilitate the action of the water on the salt; by this means it is converted into a yellow powder; decant the liquid; wash the powder frequently with boiling water, and dry it. It is essential for the production of a superior article that the persulphate employed contains no protosulphate; this is ascertained by adding a solution of chloride of sodium to a small portion of the solution, when, if it is entirely persulphate, no precipitate is produced, and, on the contrary, if it contain protosulphate, a white precipitate proportional to the quantity it contains is thrown down.—*Paris Codex.*

When bisulphate of peroxide of mercury is triturated with water it is decomposed; the fluid acting by its powerful affinity for sulphuric acid abstracts the acid, and precipitates the oxide; but, as the acid still holds combined with it a small portion of oxide, and the precipitated oxide retains some acid, the result of this part of the process is a supersulphate of mercury held in solution by the water, and a subsulphate precipitated in the form of a yellow powder. To obtain this effect completely, the saline mass must be made entirely dry before pouring over it the hot water; for, if the vessel be sooner taken from the fire, the precipitation is partial only, the greater part of the salt being dissolved without being decomposed. Perhaps the best mode is to continue the exsiccation until a little of the white mass thrown in cold water does not redden litmus paper.—THOMSON.

Subsulphate of mercury is a heavy, lemon-yellow-coloured powder, of an acrid, slowly developed, metallic taste, destitute of odour, but powerfully irritating to the nostrils when inhaled in fine dust. Its specific gravity is 6.444. It is soluble in 600 parts of boiling water, and in 2,000 parts at the temperature of 60°. By trituration with mercury it is changed into the protoxide; and at a red heat is decomposed, the oxygen being given out, and the metal reduced. It consists, according to Phillips, of four equivalents of peroxide of mercury and three of sulphuric acid.

HYDRARGYRI BISULPHURETUM—*Bisulphuret of Mercury, L.*—Take of mercury 2 pounds; sulphur 5 ounces. Mix the mercury with the sulphur, melted over the fire, and, as soon as the mass swells, remove the vessel from the fire, and cover it strongly, lest inflammation should occur; then rub the mass to powder, and sublime it.—*London.*

CINNABARIS—*Cinnabar, E.*—Take of mercury 2 pounds; sulphur 5 ounces. Melt the sulphur, add the mercury, and continue the heat till the mixture begins to swell up. Then remove the vessel, and cover it closely, to prevent the mixture taking fire. When the material is cold reduce it to powder, and sublime it.—*Edinburgh.*

HYDRARGYRI SULPHURETUM RUBRUM—*Red Sulphuret of Mercury, D.*—Take of purified mercury 19 parts; sublimed sulphur 3 parts. Mix the mercury with the melted sulphur; and if the mixture take fire extinguish it by covering the vessel; then rub the mass to powder, and sublime it.—*Dublin.*

HYDRARGYRI SULPHURETUM RUBRUM—*Red Sulphuret of Mercury—Cinnabar, U.S.*—Take of mercury 40 ounces; sulphur 8 ounces. Mix the mercury with the melted sulphur over the fire; and, as soon as the mass begins to swell, remove the vessel from the fire, and cover it with considerable force to prevent combustion; then rub the mass into powder, and sublime.—*United States.*

"Bisulphuret of mercury may be obtained both in the moist and dry way. In the moist way it is thrown down in the form of a greyish-black powder when sulphuretted hydrogen is transmitted through a solution of corrosive sublimate. Bucholz showed, too, that it may be prepared of fine quality by gently heating in a bottle four parts of fine mercury, one of sulphur, three of potash, and six of water till the mercury is extinguished, and then keeping it in a warm place, with occasional agitation, till the powder, which is at first black, acquires a fine red tint. In the dry it is made by heating the constituents together till they unite, and then subliming the product. The inflammation which is apt to happen after the mixture of the mercury with the melted sulphur is similar to the combustion during the union of sulphur by heat with some other metals, independent of the presence of air; hence covering the vessel without removing it from the fire does not check the combustion, although by excluding the air a real inflammation of the materials is prevented."

Bisulphuret of mercury is produced in two forms, in mass and in powder. When in mass as originally sublimed, it constitutes a ponderous, dark brownish-red, striated substance of metallic brilliancy, very friable, and yielding a fine vermilion streak when scratched with the nail. When in powder, it is of a bright red colour, inodorous and insipid, and undergoes no change in the air. It is insoluble in water, alcohol, sulphuric, nitric, muriatic, or acetic acid; it is not altered by alkaline solutions even when boiled with them. It is decomposed, however, by nitro-hydrochloric acid, which dissolves it, producing chloride of mercury and sulphate of the peroxide. It is composed of two equivalents of sulphur 32, and one equivalent of mercury 202.

It is frequently adulterated with red lead, red oxide of iron, brick-dust, and sulphuret of arsenic. The tests of the London College are—"Totally evaporated by heat, and, on potash being added to it, it runs into globules of mercury. It is not dissolved either by nitric or hydrochloric acid, but is so by a mixture of them. Rectified spirit with which it has been boiled or washed acquires no red colour. Digested with arsenic acid, it yields no yellow precipitate by iodide of potassium; when heated by itself it is volatilized undecomposed, but when heated with potash it is decomposed, and mercury is obtained. No acid dissolves it, but the nascent chlorine yielded by the mutual decomposition of nitric and hydrochloric acids converts it into bichloride of mercury, which dissolves, and the sulphur becomes sulphuric acid. If it contain any deutoxide of lead, a portion of that would be dissolved by acetic acid, and the solution would give a yellow iodide of lead, with iodide of potassium." The Edinburgh tests—"It is sublimed entirely by heat, and without any metallic globules being formed."

HYDRARGYRI SULPHURETUM CUM SULPHURE—*Sulphuret of Mercury with Sulphur, L.*—Take of mercury, sulphur, each, a pound. Rub them together until globules are no longer visible.—*London.*

HYDRARGYRI SULPHURETUM NIGRUM—*Black Sulphuret of Mercury, D.*—Take of purified mercury, sublimed sulphur, each, one part. Rub them together in an earthen mortar till globules disappear.—*Dublin.*

HYDRARGYRI SULPHURETUM NIGRUM—*Black Sulphuret of Mercury, U.S.*—Take of mercury, sulphur, each, a pound. Rub them together till all the globules disappear.—*United States.*

ÉTHIOPS MINERAL—SULFURE NOIR DE MERCURE—*Black Sulphuret of Mercury, P.*—Take of mercury 100 parts; sulphur, sublimed and washed, 200 parts. Triturate them together in an earthen mortar until all the globules disappear and the mixture has acquired a black colour.—*Paris Codex.*

"This preparation is not very easily made. The most approved method is to operate on small quantities at a time, and to moisten the mixture occasionally with a little water. Geiger states that, with the aid of a little solution of hydrosulphate of ammonia, extinction may be perfected in a short time, and a compound obtained which is identical with that produced without any addition to the mixture of mercury and sulphur."

Some doubt exists in respect to the exact nature of Éthiops Mineral. It is a black, tasteless powder, insoluble in water According to Mr. Brande, caustic potash in solution removes sulphur from it at a boiling temperature, and leaves a black powder; which, when sublimed,

presents the characters of cinnabar or bisulphuret of mercury. This analysis would indicate it to be an intimate mechanical mixture of bisulphuret, sulphur, and uncombined mercury; which appears doubtful, if, as some have stated, nitric acid has no action on it; for, if free mercury were present, it would be dissolved. There seems no good reason for supposing, with Dr. Barker and other, that it is a mixture of sulphur and protosulphuret of mercury; and hence its designation in the New London Pharmacopœia is incorrect. Doubts are even entertained whether a protosulphuret of this metal is yet known at all as obtained by any process; for the black substance, produced by the action of sulphuretted hydrogen on solutions of the salts of protoxide of mercury, and which Turner and other chemists consider a true protosulphuret, has been found by Guibourt to yield globules of mercury by mere expression.—CHRISTISON.

This preparation is composed, according to Phillips, of a mixture of bisulphuret of mercury 58 and sulphur 42=100.

PREPARATIONS OF MAGNESIA.

MAGNESIA—*Magnesia, L.*—Take of carbonate of magnesia 4 ounces. Burn it for two hours in a very strong fire.—*London.*

MAGNESIA—*Magnesia, E.*—Take any convenient quantity of carbonate of magnesia, expose it in a crucible to a full red heat for two hours, or till the powder, when suspended in water, presents no effervescence on the addition of muriatic acid. Preserve the product in well-closed bottles.—*Edinburgh.*

MAGNESIA—*Calcined Magnesia, D.*—Take of magnesia any quantity. Let it be put into a crucible, and subjected to a strong heat for two hours; and when it has cooled preserve it in a well-closed glass vessel.—*Dublin.*

MAGNESIA—*Magnesia, U.S.*—Take of carbonate of magnesia any quantity. Put it into an earthen vessel, and expose it to a red heat for two hours, or till the carbonic acid is wholly expelled.—*United States.*

MAGNÉSIE—*Calcined Magnesia, P.*—Take of carbonate of magnesia any convenient quantity. Calcine it in a crucible until no more water or carbonic acid is disengaged. It is sufficiently calcined when, after it has become cold, it dissolves in water acidulated with sulphuric acid without effervescence.—*Paris Codex.*

"Carbonate of magnesia parts with its carbonic acid at a high temperature, and the magnesia remains pure, in the proportion of five twelfths of the carbonate employed. The process by calcination requires particular management according to the degree of condensation desired in the product. In Britain a dense, heavy magnesia is preferred; but in France a preference is given to the light. A light magnesia is best obtained by keeping the heat low—a dense one by elevating it considerably, and also according to M. Robiquet, by first moistening the carbonate, and squeezing it strongly in a cloth. Magnesia may also be prepared from its soluble salts by decomposing them with the caustic alkalis; according to Ure, by boiling calcined magnesian-limestone (dolomite) with the bittern or mother water left in manufacturing sea salt. The lime displaces the magnesia in the liquid, and pure magnesia is thus produced, partly from the bittern, and partly from the calcined mineral."

Magnesia is in the form of a white, very light, soft powder, having a specific gravity of 2.3. It has an alkaline reaction, does not effervesce with acids. It attracts carbonic acid and moisture from the atmosphere. It is very sparingly soluble, and requires for its solution 5,142 parts of water at 60°, and 36,000 at 212°. Acids unite with it, occasioning much heat, and forming salts, some of which are soluble, and others not so. Its soluble salts are bitter. It consists of one equivalent of metal and one of oxygen; and, consequently, of 12.7 parts of the former, and 8 parts of the latter.

It is much subject to adulteration with lime, alumina, and silica. It is often mixed with carbonate of magnesia from having been unskilfully prepared. The tests of the London College are—"Dissolves in hydrochloric acid without effervescence; neither bicarbonate of potash nor chloride of barium throws down anything from the solution. It turns turmeric slightly brown:—The solubility in hydrochloric acid without effervescence shows that the carbonic acid has been perfectly expelled; any substance which remains unacted upon by the acid is an impurity. If the magnesia contained lime it would be precipitated from the solution by the bicarbonate of potash; and, if insufficiently washed, the sulphate and carbonate of soda which it might contain would be precipitated by the chloride of barium. It acts but slightly on turmeric paper even when moistened." The Edinburgh tests are—"Fifty grains are entirely soluble without effervescence in a fluid ounce of muriatic acid; an excess of ammonia occasions in the solution only a scanty precipitate of alumina; the filtered fluid is not precipitated by solution of oxalate of ammonia."

MAGNESIÆ CARBONAS—*Carbonate of Magnesia, L.*—Take of sulphate of magnesia 4 pounds; carbonate of soda 4 pounds 8 ounces; distilled water 4 gallons. Dissolve separately the carbonate of soda and sulphate of magnesia in two gallons of the water, and strain; then mix and boil the liquors, stirring constantly with a spatula for a quarter of an hour; lastly, the liquor being poured off, wash the precipitated powder with boiling distilled water, and dry it.—*London.*

MAGNESIÆ CARBONAS—*Carbonate of Magnesia, E.*—Take of sulphate of magnesia 4 pounds; carbonate of soda 4 pounds and 8 ounces; water 4 gallons. Dissolve the salts separately, each in two gallons of the water; mix the solutions; boil the mixture, and stir briskly for fifteen or twenty minutes. Collect the precipitate on a filter of calico or linen, wash it thoroughly with boiling water, and dry it.—*Edinburgh.*

MAGNESIÆ CARBONAS—*Carbonate of Magnesia, D.*—Take of sulphate of magnesia 25 parts; carbonate of potassa 14 parts; boiling water 400 parts. Dissolve the sulphate of magnesia and the carbonate of potassa, each, in 200 parts of water. Mix together the defecated liquors; then boil the mixture for a short time, and strain it while it is hot through linen stretched in a proper manner for collecting the magnesia. Wash away the sulphate of potassa by repeated affusions of boiling water; and finally, dry the carbonate of magnesia.—*Dublin.*

"Carbonate of magnesia is prepared either from the mother water left in the manufacture of sea salt, or from sulphate of magnesia, or by dissolving magnesian-limestone in sulphuric acid. A solution of magnesia being obtained, in one way or another, an alkaline carbonate is added, upon which double decomposition ensues, and carbonate of magnesia is precipitated. If the saline solutions be mixed cold, the whole magnesia is not thrown down in the form of carbonate; for, while the neutral carbonate is in the act of forming, it is resolved by the action of the water into two salts. Supposing five equivalents of carbonate of magnesia present, one of them, abstracting carbonic acid from a second, remains dissolved in the form of bicarbonate; and the three remaining equivalents of carbonic acid combine with the remaining four equivalents of base, together with as many equivalents of water as there are of magnesia, and thus is constituted the insoluble officinal sub-salt. But, if the mixture be then boiled, some carbonic acid is given off by the dissolved bicarbonate, and its magnesia falls down in the same state as the precipitate occasioned in the cold. If the solutions of the magnesian salt and alkaline salt be mixed at the boiling temperature, of course more complete precipitation is accomplished at once, and effervescence takes place from the escape of carbonic acid; but still ebullition of the mixture for some minutes is required to complete the process. The water employed in every part of the process should be very soft, either rain or pure distilled water. The greater part, however, of the carbonate of magnesia found in the shops is prepared from bittern, the liquor remaining after the crystallization of common salt from sea water. The bittern is heated to 212°, a solution of impure carbonate of potassa instantly added to it, and the fire withdrawn, &c."

Carbonate of magnesia, as usually met with, is in the form of a pure white, inodorous, almost tasteless, powder, permanent in the air, and feebly alkaline in its action on vegetable colours. The common, or light variety, occurs in commerce of a very fine light powder, of which forty-eight grains lightly fill an ounce measure: its specific gravity is 0.205. The heavy carbonate is of greater specific gravity: 160 grains of it lightly fill an ounce measure. Carbonate of magnesia is nearly insoluble in water, but more freely in cold than at the boiling temperature. It is much more soluble, however, if the water be charged with carbonic acid, 48 parts of water being then sufficient. It is easily soluble in diluted sulphuric, nitric, or muriatic acid. It is composed, according to Phillips, of carbonic 36, magnesia 40.8, water 23.2 in 100 paris.

The tests of the London College are—"The water in which it is boiled does not alter the colour of turmeric; chloride of barium, or nitrate of silver, added to the water, does not precipitate anything. One hundred parts dissolved in dilute sulphuric acid lose 36.6 parts in weight. When the effervescence has ceased, bicarbonate of potash does not precipitate anything from this solution:—If the water in which it is boiled alter tumeric, excess of carbonate of soda has been used, and the carbonate of magnesia has not been sufficiently washed. If chloride of barium give a precipitate in the water, then either carbonate of soda, or sulphate of soda, or both, may be present from insufficient washing; and a precipitate yielded by nitrate of silver insoluble in nitric acid would indicate the presence of a chloride. The loss of 36.6 per cent. by dissolving it in dilute sulphuric acid is derived from the expulsion of carbonic acid. Bicarbonate of potash does not precipitate magnesia from sulphuric acid; if, therefore, there be any precipitate, on mixing them it is derived from impurity." The tests of the Edinburgh College are—"When dissolved in an excess of muriatic acid, an excess of ammonia occasions only a scanty precipitate of alumina; the filtered fluid is not precipitated by oxalate of ammonia."

It is incompatible with acids and acidulous and metallic salts, hydrochlorate of ammonia, and lime water.

CHLORURE DE MAGNÉSIUM CRISTALLISÉ—*Crystallized Hydrochlorate of Magnesia, P.*—Take of carbonate of magnesia 100 parts; hydrochloric acid Q.S. Dissolve the magnesia in the hydrochloric acid, taking care to have a slight excess of acid; filter, and evaporate to the density of 1,380 while boiling, and set it aside in an open flat vessel to crystallize. This salt must be preserved in well-stopped bottles.—*Paris Codex.*

PREPARATIONS OF GOLD.

OR EN POUDRE—*Powder Gold, P.*—Take of gold leaf any quantity. Triturate it with ten or fifteen times its weight of sulphate of potash,

until you cannot perceive any shining particles; pass through a sieve, and treat the mixture with boiling water; the sulphate of potash is dissolved, and the gold is obtained in the form of powder; wash this carefully upon a filter, and dry. Powder gold is of a bright yellow colour, insoluble in weak nitric acid, but soluble in nitromuriatic acid.—*Paris Codex.*

Chlorure d'Or et de Sodium—*Auro-Terchloride of Sodium, P.*—Take of terchloride of gold 85 parts; chloride of sodium 16 parts. Dissolve the two salts in a small quantity of distilled water; concentrate the solution with a gentle heat to a pellicle. As it cools, the auro-terchloride of sodium crystallizes in orange-coloured, quadrangular, four-sided prisms. It must be preserved in closely-stopped bottles.—*Paris Codex.*

This salt is slightly deliquescent, soluble in water. When heated, chlorine is evolved, and a mixture of gold and chloride of sodium is left behind. It consists of one equivalent of bichloride of gold 308, one eq. of chloride of sodium 60, and four eqs. of water = 36.

Perchlorure d'Or—*Terchloride of Gold, P.*—Take of gold leaf 10 parts; nitric acid 10 parts; hydrochloric acid 20 parts. Mix the two acids in a glass vessel; add the gold, and assist the solution by gentle heat. Evaporate the solution until the vapours of chlorine begin to be disengaged; allow it to crystallize, and quickly place in a well-stopped bottle.—*Paris Codex.*

Terchloride of gold is in small crystalline needles, of an orange-red colour. It is inodorous, and has a strong, styptic, disagreeable taste; it is very deliquescent, and soluble in water, alcohol, and ether. When heated it is decomposed, and is first converted into protochloride, and then into metallic gold, which is left in the spongy state. It reddens litmus, stains the cuticle purple, is reduced by many metals (as iron, copper, zinc, tin, &c.), by several of the non-metallic elementary substances (as phosphorus), by some metallic salts (as protosulphate of iron), and by many organic bodies (as charcoal, sugar, gum, gallic acid, extractive, &c.), all of which, therefore, are incompatible with it. Nitrate of silver occasions a precipitate of chloride of silver and oxide of gold; hydrochloric acid removes the latter. Terchloride of gold consists of one equivalent of gold 200, and three eq. of chlorine 108. The before-mentioned crystals also contain hydrochloric acid; hence they are considered by some as constituting a double chloride of hydrogen and gold.—Pereira.

Iodure d'Or—*Iodide of Gold, P.*—Take of terchloride of gold 100 parts; iodide of potassium Q.S. Dissolve separately the two salts in water; add then by degrees the solution of iodide of potassium to the solution of terchloride of gold until no more precipitate is formed. Place the precipitate on a filter, and, when it is well drained, wash it with alcohol, to remove the excess of iodine which always accompanies the iodides prepared this way.—*Paris Codex.*

Iodide of gold is of a greenish-yellow colour, insoluble in cold water, but slightly soluble in boiling water. Heated in a crucible, it evolves iodine vapour, and is converted into metallic gold. It is probably composed of one eq. of iodine 126, and one eq. of gold 200.

Oxide d'Or—*Peroxide of Gold, P.*—Take of terchloride of gold 10 parts; calcined magnesia 40 parts; pure nitric acid Q.S. Dissolve the terchloride of gold in about 400 parts of water; add the magnesia, and boil the mixture for several minutes; wash the product with distilled water till nitrate of silver produces no precipitate. Wash then with the nitric acid diluted with twenty parts of water, using it cold; then with distilled water acidulated with nitric acid; and lastly, with plain distilled water, till it does not afford any precipitate with nitrate of silver or phosphate of soda. The product will be the hydrated peroxide.—*Paris Codex.*

Peroxide of gold is brown; in the state of hydrate, reddish yellow. It is reduced by heat and solar light, It is insoluble in water, but is soluble in hydrochloric acid (forming terchloride of gold), and in alkalis forming aurates. It consists of three eq. of oxygen 24, and one eq. of gold 200.

Pourpre de Cassius—*Purple of Cassius, P.*—Take of terchloride of gold 10 parts; distilled water 2,000 parts. Dissolve. Take also pure tin 10 parts; nitric acid 10 parts; hydrochloric acid 20 parts; distilled water 1000 parts. Dissolve the tin in a mixture of the two acids, and dilute the solution with distilled water. Add then the solution of tin to the solution of gold by degrees, until it forms no more precipitate; allow the mixture to deposit, and wash by decantation; filter, and dry the precipitate with a very gentle heat.—*Paris Codex.*

Purple of cassius is soluble in ammonia, and does not form an amalgum with mercury; hence it does not appear to contain any metallic gold. Its composition varies. Gold, oxygen, and tin are its essential constituents.

Cyanure d'Or—*Percyanide of Gold, P.*—Take of gold 1 part; nitro-muriatic acid 6 parts; cyanide of potassium (pure and fused) 2 parts; distilled water 24 parts. First dissolve the gold in the nitro-muriatic acid; evaporate the solution to dryness; dissolve the residue in eight parts of distilled water, and filter; heat the solution in a water-bath, and, when it is reduced to about one fourth, add by degrees, stirring at the same time with a glass rod, a quarter of the solution of the cyanide of potassium; continue the evaporation to dryness; add then twenty-four parts of distilled water; agitate, and let it settle for some time. Separate by decantation the cyanide of gold produced.

Take the mother liquors; evaporate and treat them as before, with the same quantity of water and solution of cyanide of potassium. Sometimes the liquor becomes brown through this second treatment; but continue the evaporation, and, when a quantity of cyanide is formed, add several drops of nitro-muriatic acid to decolourize it; evaporate afresh, to drive off the excess of acid, which prevents the entire precipitation of the cyanide of gold. Repeat this with the mother liquor so long as you produce cyanide of gold of a bright yellow colour. To recover the gold contained in the last mother liquors, evaporate the whole to dryness, and calcine the residue in a crucible, treating it with hydrochloric acid to remove the iron.—*Paris Codex.*

Cyanide of gold is a yellow powder, insoluble in water. It consists, probably, of three equivalents of cyanogen 78, and one equivalent of gold 200. By the action of heat the gold is reduced.

Preparations of Lead.

Plumbi Acetas—*Acetate of Lead, L.*—Take of oxide of lead, rubbed to powder, 4 pounds and 2 ounces; acetic acid, distilled water, each, 4 pints. Mix the acid with the water, and add the oxide of lead to them, and, a gentle heat being applied, dissolve it; then strain. Lastly, evaporate the liquor, that crystals may be formed.—*London.*

Plumbi Acetas—*Acetate of Lead, E.*—Take of pyroligneous acid (D. 1034) 2 pints; distilled water a pint; litharge 14 ounces. Mix the acid and water, add the litharge, dissolve it with the aid of a gentle heat, filter, concentatre the solution sufficiently for crystallization on cooling.—*Edinburgh.*

Plumbi Acetas—*Acetate of Lead, D.*—Take of carbonate of lead, called cerussa, any quantity; distilled vinegar 10 times its weight. Digest them in a glass vessel until the vinegar becomes sweet; and, having poured this off, add more until it cease to become sweet. Filter the solution, and crystallize by alternate slow evaporation and cooling. Dry the crystals in the shade.—*Dublin.*

In the above processes the protoxide of lead combines with the acetic acid, and forms a definite compound. In the Dublin process carbonic acid is set free. On account of the expense, &c., of the process the acetate of lead found in the shops is seldom prepared by the apothecary, but is manufactured on a large scale. It has generally the appearance of a confused white mass of interlaced, needly crystals, possessing an acetous odour, and a powerfully sweet astringent taste. Its specific gravity is 2.35. It slightly effloresces in the air. The crystallized acetate when heated fuses in its water of crystallization. It is soluble in twenty-five parts of water, either hot or cold, and in alcohol. There is always some muddiness when it is dissolved, because the carbonic acid in the water unites with a little free oxide of lead commonly contained in the acetate; or combination takes place between the oxide and a trace of organic matter, which almost all waters contain more or less in solution. The muddiness is removed by a few drops of acetic acid. It is composed, according to Phillips, of one equivalent of acetic acid 51, one equivalent of oxide of lead 112, and three equivalents of water 27.

Acetate of lead is little subject to adulteration or impurity. The tests of the London College are—"Dissolved by distilled water. By carbonate of soda a white precipitate is thrown down from the solution, and by iodide of potassium a yellow one; by hydrosulphuric acid it is blackened. Sulphuric acid evolves acetic vapours. By heat it first fuses, and is afterwards reduced to metallic lead. The white precipitate by carbonate of soda is carbonate of lead; the yellow one by iodide of potassium is iodide of lead; and the black one by hydrosulphuric acid is sulphuret of lead. The acetic acid vapour is emitted on account of the greater affinity of sulphuric acid for oxide of lead, with which it forms a white precipitate of sulphate of lead." The tests of the Edinburgh College are—"Entirely soluble in distilled water acidulated with acetic acid; forty-eight grains thus dissolved are not entirely precipitated by a solution of thirty grains of phosphate of soda." Thirty grains of phosphate of soda and 47.66 of acetate of lead exactly decompose one another. Hence, if fourteen grains, or a one hundred and forty-fourth part, more of the latter salt be used, the solution will be affected after filtration by a further addition of phosphate, provided the acetate be tolerably pure.

It is decomposed by all those acids and their compounds which form, with oxide of lead, salts nearly insoluble in water, as the sulphuric, hydrochloric, carbonic, nitric, and tartaric acids, &c. It is decomposed by lime-water; by the alkalis, potash, and soda; but, if added in excess, they redissolve the precipitate at first formed. Hard water usually contains three ingredients which decompose acetate of lead; viz., carbonate of lime, sulphate of lime, and common salt; and hence, when dissolved in such water, the solution is always turbid. It is decomposed by hydrosulphuric acid and its salts, which give a black sulphuret. Liquor Ammoniæ Acetatis also decomposes it, on account of the carbonic acid diffused through it.—Phillips.

Liquor Plumbi Diacetatis—*Solution of Diacetate of Lead, L.*—Take of acetate of lead 2 pounds and 3 ounces; oxide of lead, rubbed to powder, 1 pound and 4 ounces; water 6 pints. Boil them for half an hour, frequently stirring, and, when the liquor is cold, add of distilled water as much as may be sufficient to measure with it six pints. Lastly, strain the solution.—*London.*

Plumbi Diacetatis Solutio—*Solution of Diacetate of Lead, E*—Take of acetate of lead 6 ounces and 6 drachms; litharge, in fine powder, 4 ounces; water a pint and a half. Boil the salt and litharge with the water for half an hour, stirring occasionally. When the solution is cold, add water, if necessary, to make up a pint and a half; and then filter. Preserve the solution in well-closed bottles.—*Edinburgh.*

Plumbi Subacetatis Liquor—*Solution of Subacetate of Lead, D.*—Take of semivitreous oxide of lead 1 part; distilled vinegar 12 parts. Put them into a glass vessel, and boil, assiduously stirring until 11 parts only of the fluid remain; then set the solution aside, and strain it after the fæces have subsided.—*Dublin.*

Liquor Plumbi Subacetatis—*Solution of Subacetate of Lead, U.S.*—Take of acetate of lead 16 ounces; semivitrified oxide of lead, in very fine powder, 9½ ounces; distilled water 4 pints. Boil them together in a glass or porcelain vessel for half an hour, occasionally adding distilled water, so as to preserve the measure, and filter through paper. Keep the solution in closely-stopped bottles.—*United States.*

Sous-Acétate de Plomb Liquide—*Solution of Subacetate of Lead, P.*—Take of crystallized acetate of lead 300 parts; litharge 100 parts; distilled water 900 parts. Boil the acetate of lead with the litharge, reduced to fine powder until the litharge is dissolved, and the liquor has the density of 1260. Filter, and preserve it in well-stopped bottles.—*Paris Codex.*

"These preparations are all varieties of the celebrated Goulard's extract, which was first made with crude litharge and vinegar; then with distilled vinegar, as still recommended by the Dublin College; and now more generally, as directed by the other Pharmacopœias, by boiling a solution of the neutral acetate with finely-powdered litharge. The solution has an alkaline reaction upon vegetable colours. It deposits a white carbonate of lead under exposure to air, and much more quickly when a stream of carbonic acid is transmitted into it, as by propelling the breath through a tube. It is colourless; has an astringent, sweetish taste; its specific gravity is 1260. It is composed of one eq. of acetic acid 51.48, and two eqs. of protoxide of lead."

Liquor Plumbi Diacetatis Dilutus—*Diluted Solution of Diacetate of Lead, L.*—Take of solution of diacetate of lead a fluidrachm and a half; distilled water a pint; proof spirit 2 fluidrachms. Mix.—*London.*

Liquor Plumbi Subacetatis Dilutus—*Diluted Solution of Subacetate of Lead, U.S.*—Take of solution of subacetate of lead 2 fluidrachms; distilled water a pint. Mix them.—*United States.*

Plumbi Chloridum—*Chloride of Lead, L.*—Take of acetate of lead 10 ounces; distilled water, boiling, 3 pints; chloride of sodium 6 ounces. Dissolve the acetate of lead and chloride of sodium separately, the former in three pints of distilled water, and the latter in one pint of distilled water. Then, the liquors being mixed together, wash what is precipitated with distilled water when it is cold, and dry it.—*London.*

The acetate of lead and chloride of sodium are mutually decomposed in this process; the acetate of lead parts both with its acid and the oxygen of its oxide; the oxygen uniting with the sodium forms soda, which combines with the acetic acid, whilst the freed chlorine combines with the lead, and forms the chloride.

This compound is a white, heavy, tasteless, crystalline powder, easily fusible, and on cooling after fusion assumes a horn-like appearance, and hence was formerly called *horn lead.* It is soluble in thirty parts of water at 60°, and in twenty-two at 212°, separating as the solution cools in the form of small, brilliant, tabular, or acicular crystals. It is more soluble in water containing a little nitric acid. It is composed of one eq. of chlorine 36, and one eq. of lead 104.

Plumbi Iodidum—*Iodide of Lead, L.*—Take of acetate of lead 9 ounces; iodide of potassium 7 ounces; distilled water a gallon. Dissolve the acetate of lead in six pints of the water, and strain; and to these add the iodide of potassium, first dissolved in two pints of the water. Wash what is precipitated, and dry it.—*London.*

Plumbi Iodidum—*Iodide of Lead, E.*—Take of iodide of potassium and nitrate of lead of each an ounce; water a pint and a half. Dissolve the salts separately, each in one half of the water; add the solutions; collect the precipitate on a filter of linen or calico, and wash it with water. Boil the powder in three gallons of water, acidulated with three fluid ounces of pyroligneous acid. Let any undissolved matter subside, maintaining the temperature near the boiling point, and pour off the clear liquor, from which the iodide of lead will crystallize on cooling.—*Edinburgh.*

Iodure de Plomb—*Iodide of Lead, P.*—Take of neutral acetate of lead 100 parts; iodide of potassium Q.S. Dissolve separately the two substances; add by degrees the solution of iodide of potassium to that of the acetate until it ceases to produce a yellow precipitate; wash the precipitate with a small quantity of cold water, and dry it.—*Paris Codex.*

When solutions of the salts of lead and iodide of potassium are mixed together, both are decomposed, accompanied with the transfer of the oxygen of the oxide of lead to the potassium of the iodide, and there are formed acetate of potash, which remains dissolved, and iodide of lead, which is precipitated.

Iodide of lead is nearly always obtained by double decomposition of the acetate or nitrate of lead with iodide of potassium. The nitrate is, on the whole, the preferable salt, as being more uniform in composition, and free from any oxide of lead. When pure, it is a fine powder of deep gamboge-yellow colour; heavy, tasteless, and inodorous; it is very sparingly soluble in cold water, requiring about 2,000 parts and about half as much boiling water; and, on cooling, shining yellow minute crystals are deposited; it is soluble in solution of pure potassa. It is decomposed by heat, the iodine being dissipated in vapour, and metallic lead left. It is composed of one eq. of lead 104, and one of iodide 126.3. The tests of the London College are—"Totally dissolved by boiling water, and, as it cools, separates in shining yellow scales. It melts by heat, and the greater part is dissipated first in yellow and afterwards in violet vapours." The tests of Ph. Ed.—"Bright yellow: five grains are entirely soluble, with the aid of ebullition in, one fluidrachm of pyroligneous acid diluted with a fluid ounce and a half of distilled water; and golden crystals are abundantly deposited on cooling."

Plumbi Nitras—*Nitrate of Lead, E.*—Take of litharge 4½ ounces; diluted nitric acid a pint. Dissolve the litharge to saturation with the aid of a gentle heat. Filter, and set the liquor aside, to crystallize; concentrate the residual liquor, to obtain more crystals.—*Edinburgh.*

This salt forms tetraedral and octahedral crystals, nearly opaque, white, and of adamantine lustre. They are permanent in the air. They are soluble in somewhat more than four parts of water. Heat fuses the nitrate, and when increased decomposes it, driving off various compounds of nitrogen, and leaving pure oxide of lead. Its solution is effected by sulphuretted hydrogen, iodide of potassium, chromate of potash, the alkaline carbonates and sulphates, and metallic zinc, exactly in the same way as solutions of the acetate. It is composed of one eq. of protoxide of lead 112, and one eq. of acid 54.

It is not subject to adulteration.

Plumbi Oxydum Hydratum—*Hydrated Oxide of Lead, L.*—Take of solution of diacetate of lead 6 pints; distilled water 3 gallons; solution of potash 6 pints, or as much as may be sufficient to precipitate the oxide. Mix. Wash with water what is precipitated until nothing alkaline remains.—*London.*

The oxide, in precipitating, combines with water, and is thus constituted an insoluble hydrate, whilst the acetate of potash remains in solution. The potash must be added cautiously towards the close, so that a faint excess only may be present, otherwise some of the oxide is redissolved. The hydrate is also formed from the action of distilled water upon lead under exposure to the air.

Hydrated oxide of lead is a perfectly white, tasteless, heavy powder, soluble in excess of potash; very sparingly soluble in distilled water, but soluble in nitric and acetic acids; with hydrochloric acid it forms chloride of lead, and with the sulphuric an insoluble sulphate. Like litharge, and in a greater degree than that substance, it possesses the property of decolourizing many coloured vegetable fluids. It is composed of three eqs. of oxide of lead 334,8, and one eq. of water 9.—(Payen, also Mulder.)

Preparations of Potassium and of Potash.

Potassæ Acetas—*Acetate of Potash, L.*—Take of carbonate of potash a pound; acetic acid 26 fluid ounces; distilled water 12 fluid ounces. Add the carbonate of potash to the acid first mixed with the water, to saturation, then strain. Evaporate the liquor in a sand-bath, the heat being cautiously applied, until the salt is dried.—*London.*

Potassæ Acetas—*Acetate of Potash, E.*—Take of pyroligneous acid a pint and a half; carbonate of potash, dry, 7 ounces, or a sufficiency. Add the carbonate gradually to the acid till complete neutralization is accomplished. Evaporate the solution over the vapour-bath till it is so concentrated as to form a concrete mass when cold. Allow it to cool and crystallize in a solid cake, which must be broken up, and immediately put into well-closed bottles.—*Edinburgh.*

Potassæ Acetas—*Acetate of Potassa, D.*—Take of carbonate of potassa, from crystals of tartar, any quantity. Add to it gradually about five times its weight of distilled vinegar moderately heated. When the effervescence shall have ceased, and the fluid is somewhat evaporated, add, at intervals, more distilled vinegar, until the mixtures entirely cease to effervesce; then evaporate to dryness, and, having raised the fire a little cautiously, liquefy the mass. Dissolve the salt in water after it is cold; filter the solution and let it be boiled, until, on being removed from the fire, it concrete into a crystalline mass, which should be very white. Put this mass, at the moment, into closely-stopped bottles.—*Dublin.*

Potassæ Acetas—*Acetate of Potassa, U.S.*—Take of acetic acid a pint; carbonate of potassa a sufficient quantity. Add the carbonate of potassa gradually to the acetic acid till it is saturated; then filter and evaporate cautiously, by means of a sandbath, until a dry salt remains. Keep this in closely-stopped bottles.—*United States.*

Acétate de Potasse—*Acetate of Potash, P.*—Take of pure carbonate of potash 1,000 parts; acetic acid Q. S. Add the carbonate of potash gradually to the acetic acid until it is almost saturated, stirring the mixture, to hasten the solution. Filter, and evaporate in a silver vessel. As the density increases a pellicle forms, which must be removed with a spatula. Continue the evaporation until it is quite dry, and enclose quickly in bottles, and hermetically seal.—*Paris Codex.*

In these processes the acetic acid combines with the potash of the carbonate, and expels the carbonic acid in the gaseous form. The chief precautions to be attended to are, that there shall be no excess of alkali, but rather the reverse, otherwise the free alkali reacts on the acid of the salt when the solution is much concentrated, and discolouration ensues, and that the drying heat shall be carefully regulated. Acetate of potash, as sold in the shops, is usually in white, foliaceous, sating masses, not unlike spermaceti, exceedingly deliquescent, having a slight peculiar odour, and a pungent, saline, rather acrid taste. Heat fuses it, and then decomposes it, converting it into carbonate of potash. One hundred parts are soluble in one hundred and two parts of water at 60°, and in twice its weight of alcohol. The solution is known by giving off an acetous odour on the addition of sulphuric acid, and yielding a yellow precipitate with chloride of platinum. It is composed of one eq. of acetic acid 51.48, one eq. of potash 48., and two eqs. of water 18.

It is scarcely ever adulterated. The tests of the London College are—"Is totally dissolved both by water and by alcohol; the solution does not affect either litmus or turmeric. Nothing is precipitated from the aqueous solution either by chloride of barium or nitrate of silver; if the solution be strong, then any precipitate which the latter may occasion is redissolved on the addition of dilute nitric acid or water. By a red heat it is totally converted into carbonate of potash. Sulphuric acid added to it emits acetic vapours: its total solubility in water proves the absence of insoluble mechanical admixture, and its solubility in alcohol shows that it contains no sulphate of potash: that the solution produces no change either upon litmus or turmeric proves that there is no excess either of acid or alkali. If it contain sulphate of potash, sulphate of barytes will be precipitated by chloride of barium; and if chloride of potassium, chloride of silver will be thrown down from the nitrate. From a strong solution acetate of silver may be precipitated by the nitrate; this redissolves on the addition of dilute nitric acid or water, which the chloride does not. At a red heat the acetic acid is decomposed, its hydrogen is expelled, and its carbon and oxygen, or portions of them, forming carbonic acid, remains in combination with the potash. Sulphuric acid expels the acetic acid, and sulphate of potash remains."

It is incompatible with the strong acids; the sulphates of soda and magnesia; hydrochlorate of ammonia; the tartrates of potash and soda; and by solutions of bichloride of mercury, nitrate of silver, and by decoction of tamarinds.

Potasii Bromidum—*Bromide of Potassium, L.*—Take of bromine 2 ounces; carbonate of potash 2 ounces and 1 drachm; iron filings an ounce; distilled water 3 pints. First add the iron, and afterwards the bromine, to a pint and a half of the distilled water. Set them by for half an hour, frequently stirring them with a spatula. Apply a gentle heat, and, when a greenish colour occurs, pour in the carbonate of potash dissolved in the remainder of the water. Strain, and wash what remains in two pints of boiling distilled water, and again strain. Let the mixed liquors be evaporated, so that crystals may be formed. —*London.*

Bromure de Potassium—*Bromide of Potassium, P.*—Take of caustic potash 50 parts; bromine Q. S. Dissolve the potash in about 15 parts of water; place the solution in a straight upright vessel; and pour the bromine by little at a time into the lower part of the solution by means of a funnel or tube; mix the two carefully. Continue to add bromine until the liquor remains slightly coloured; evaporate to dryness in a porcelain vessel; place the residue in a platinum crucible; fuse it, and maintain at a dull red heat during several minutes, to convert into bromide the bromate which it contains. Redissolve the saline mass in distilled water, and by evaporation and crystallization bromide of potassium crystallizes in cubes.—*Paris Codex.*

The process of the London Pharmacopœia comprehends two distinct stages—first, the combination of the bromine with the iron, which readily takes place at a slightly elevated temperature; secondly, the decomposition of the bromide of iron by the potassa. In this stage of the process the oxygen of the potassa unites with the iron, and converts it into a protoxide, which readily combines with the carbonic acid also separated from the potassa, and forms a carbonate of iron, which, being insoluble, falls to the bottom of the vessel, whilst the bromide of potassium, produced by the union of the free bromine with the potassium, remains in solution.—Thomson.

When it is prepared according to the directions of the Codex, th bromine decomposes the potash and combines with the potassium t form bromide of potassium; while the oxygen of the decompose potash unites with a portion of bromine to form bromic acid, whic likewise combines with potash to form bromate of potash. Whe this is strongly heated, by the expulsion of oxygen in the gaseou state, the bromate is converted into bromide of potassium.

Bromide of potassium is a white, inodorous, cubical salt; it has penetrating taste, is very soluble in water, and but slightly so in al cohol; it decrepitates when heated, and undergoes igneous fusio without suffering decomposition. It is composed of one equivalen of bromine 78, and one equivalent of potassium 40.

The tests of the London College are—"Totally dissolved b water. It does not alter the colour of litmus or turmeric. Chlorid of barium throws down nothing from the solution. Sulphuric aci and starch added together render it yellow. Subjected to heat, i loses no weight. Ten grains of this salt are capable of acting upo 14.28 grains of nitrate of silver, and precipitating a yellowish bromid of silver, which is dissolved by ammonia, and but very little by nitri acid. The non-action of litmus and turmeric proves the absence o free acid and alkali, and that of chloride of barium shows that no sul phate is present. The sulphuric acid decomposes the bromide, an the bromine set free produces the well-known yellow colour, wit the starch. As it contains no water of crystallization it should los no weight even by a strong heat. If it decompose a larger quantity of nitrate of silver than above stated, it is probably owing to th presence of chloride of potassium. When bromide of potassium free from chloride, is mixed with chromate of potash and heated in a retort with sulphuric acid, solution of ammonia, into which the product is received, contains no chromic acid."

It is incompatible with acids, metallic salts, and chlorine.

Potassæ Carbonas—*Carbonate of Potash, L.*—Take of impure carbonate of potash 2 pounds; distilled water a pint and a half. Dissolve the impure carbonate of potash in the water, and strain; then pour it into a proper vessel, and evaporate the water, that the liquor may thicken; afterwards stir it constantly with a spatula until the salt concretes. Carbonate of potash may be prepared more pure from the crystals of bicarbonate of potash heated to redness.—*London.*

Potassæ Carbonas Purum—*Pure Carbonate of Potash, E.*—Pure carbonate of potash may be most readily obtained by heating crystallized bicarbonate of potash to redness in a crucible, but more cheaply by dissolving bitartrate of potash in thirty parts of boiling water, separating and washing the crystals which form on cooling, heating them in a loosely-covered crucible to redness so long as fumes are discharged, breaking down the mass, and roasting it in an open crucible for two hours, with occasional stirring, lixiviating the product with distilled water, filtering the solution thus obtained, evaporating the solution to dryness, granulating the salt towards the close by brisk agitation, and heating the granular salt nearly to redness. The product of either process must be kept in well-closed vessels.—*Edinburgh.*

Potassæ Carbonas e Lixive Cinere—*Carbonate of Potash from Pearlashes, D.*—Take of potashes coarsely powdered, cold water, each one part. Mix them by trituration, and macerate them in a wide vessel for the space of a week with frequent agitation; then filter the solution and evaporate it to dryness; and, towards the end of the process, assiduously stir the saline mass with an iron spatula. In this manner, having reduced it to a coarse powder, preserve it in well-stopped vessels. Previous to dissolving the ashes in the water, if they be very impure, roast them in a crucible until they become white.—*Dublin.*

Potassæ Carbonas e Tartari Crystallis—*Carbonate of Potassa from Crystals of Tartar, D.*—Take of crystals of tartar any quantity. Heat it to redness in a silver crucible lightly covered until fumes cease to be emitted. Then boil it in twice its weight of water during a quarter of an hour, and, after due subsidence of the impurities, pour off the pure solution. Let this part of the process be repeated three times. Filter the mixed leys, and evaporate them in a silver vessel; then, while the residuary salt is drying, granulate it by brisk agitation, and expose it to an obscure red heat. Take it out of the vessel before it be quite cold, and let it be preserved in well-stopped vials.—*Dublin.*

Potassæ Carbonas—*Carbonate of Potash, U.S.*—Take of impure carbonate of potash 3 pounds; water 2½ pints. Dissolve the impure carbonate of potash in the water, and filter the solution; then pour it into a clean iron vessel, and evaporate the water over a gentle fire till the solution thickens; lastly, remove it from the fire, and stir it constantly with an iron spatula till the salt granulates.—*United States.*

"Impure carbonate of potash is the pearlash of commerce; this consists of the carbonate mixed with a large proportion of sulphates, muriates, and other impurities. By solution in water a great part of the earthy impurity, at least, is removed, and it is better to employ cold water than hot. The London and Dublin processes consist essentially in dissolving the impure salt in as small a quantity of water

as possible, by which many of the impurities are left behind. In preparing it from the bitartrate the degree of heat to which the bitartrate is exposed decomposes its tartaric acid; and by the reunion of two of its components, oxygen and carbon, carbonic acid is formed, which combines with the potassa, while the remaining carbonaceous matter produced by the decomposition is burnt out by the subsequent roasting."

Pure carbonate of potash is in small roundish grains, white, opaque, caustic, and alkaline to the taste, and soapy to the touch, if moist. It quickly deliquesces in the air and soon becomes liquid. A red heat fuses it, and drives off about sixteen per cent. of water; but no elevation of temperature, however great, causes any further change; water dissolves rather more than an equal weight of it, and any residue may be considered an impurity. It is soluble in alcohol. It is composed, according to Phillips, of one equivalent of carbonic acid 22, and one equivalent of potash 48.

The adulterations of carbonate of potash are generally water, sulphate of potash, muriate of potash, and silica. The tests of the London College are—"Almost entirely dissolved by water; in an open vessel it spontaneously liquefies. It changes the colour of turmeric brown. When supersaturated with nitric acid, neither carbonate of soda nor chloride of barium throws down anything, and nitrate of silver but little. One hundred parts lose 16 of water by a strong heat, and the same quantity loses 26.3 parts of carbonic acid on the addition of dilute sulphuric acid. The portion insoluble in water is in general a small quantity of earthy impurity. When carbonate of soda produces no precipitate in the nitric solution, there is no earthy impurity; chloride of barium indicates the presence of a sulphate, and nitrate of silver of a chloride, when they occasion precipitates." The tests P. E.—"One hundred grains lose not more than 20 on exposure to a red heat; and, when dissolved and supersaturated by pure diluted nitric acid, the solution gives a faint haze only with solution of nitrate of baryta, and is entirely precipitated by 100 minims of solution of nitrate of silver."

It is incompatible with acids and acidulous salts, acetate of ammonia, alum, chloride of barium, chloride of calcium, hydrochlorate of ammonia, lime-water, sulphate of magnesia, and most other salts, whether alkaline, earthy, or metallic.

Liquor Potassæ Carbonatis—*Solution of Carbonate of Potash, L.*—Take of carbonate of potash 20 ounces; distilled water a pint. Dissolve the carbonate of potash in the water, and strain.—*London.*

Liquor Potassæ Carbonatis—*Solution of Carbonate of Potassa, U.S.*—Take of carbonate of potassa a pound; distilled water 12 fluid ounces. Dissolve the carbonate of potassa in the water, and filter the solution.—*United States.*

This solution is colourless, inodorous, and possesses the other properties above mentioned. Its specific gravity is 1.473.

Potassæ Bicarbonas—*Bicarbonate of Potash, L.*—Take of carbonate of potash 6 pounds; distilled water a gallon. Dissolve the carbonate of potash in the water; afterwards pass carbonic acid through the solution to saturation. Apply a gentle heat, so that whatever crystals have been formed may be redissolved. Then set aside the solution, that crystals may be again produced; the liquor being poured off, dry them. Carbonic acid is very easily obtained from chalk rubbed to powder, and mixed with water to the consistence of a syrup, upon which sulphuric acid is then poured diluted with an equal weight of water.—*London.*

Potassæ Bicarbonas—*Bicarbonate of Potash, E.*—Take of carbonate of potash 6 ounces; carbonate of ammonia 3½ ounces. Triturate the carbonate of ammonia to a very fine powder; mix with it the carbonate of potash; triturate them thoroughly together, adding by degrees a very little water, till a smooth and uniform pulp be formed. Dry this gradually at a temperature not exceeding 140°, triturating occasionally towards the close; and continue the desiccation till a fine powder be obtained, entirely free of ammoniacal odour.—*Edinburgh.*

Potassæ Bicarbonas—*Bicarbonate of Potassa, D.*—Take of carbonate of potassa from lixiviated potashes 1 part; distilled water 2 parts. Dissolve. Expose the solution in a proper apparatus to a stream of carbonic acid gas evolved from white marble by diluted hydrochloric acid, until the fluid becomes turbid; then strain, and afterwards expose it to the stream of carbonic acid gas until the alkali be saturated; finally, place the solution in a cool place, that crystals may form; dry these without heat, and preserve them in well-stopped bottles.—*Dublin.*

Potassæ Bicarbonas—*Bicarbonate of Potassa, U.S.*—Take of carbonate of potassa 4 pounds; distilled water 10 pints. Dissolve the carbonate of potassa in the water, and pass carbonic acid through the solution till it is fully saturated. Then filter, and evaporate the filtered liquor, that crystals may form, taking care that the heat does not exceed 160°. Pour off the supernatant liquor, and dry the crystals upon bibulous paper. Carbonic acid is obtained from marble by the addition of dilute sulphuric acid.—*United States.*

Bicarbonate de Potasse—*Bicarbonate of Potassa, P.*—Take of carbonate of potassa 100 parts; white marble 100 parts; hydrochloric acid Q.S. Dissolve the carbonate of potassa in so much water to make a solution of the density of 1210. Then pass through the solution carbonic acid gas produced by the marble and hydrochloric acid, and washed by having passed through water, until no more is absorbed. By this means the carbonate is converted into bicarbonate, which, being less soluble, is partly precipitated in the form of crystals, which may be dried. By evaporating the mother liquors with a very gentle heat, to avoid the disengagement of carbonic acid, a fresh quantity of bicarbonate is obtained. If the liquor is boiled a great part of the carbonic acid is driven off, and a sesquicarbonate is formed.—*Paris Codex.*

Bicarbonate of potash may be obtained in various ways. But the processes generally followed consist in charging a solution of the carbonate with carbonic acid by means of a stream of gas, or in deriving the additional carbonic acid from the decomposition of the sesquicarbonate of ammonia in contact with the carbonate of potash. When prepared by the former method it is desirable that a pure carbonate of potash be used, for if an impure salt containing silica be employed, as the Dublin College directs, it is necessary to interrupt the transmission of gas at a certain stage, in order to filter the solution, which becomes muddy from the deposition of siliceous impurities. The method by transmission of gas is not convenient on the small scale, because the gas is very slowly absorbed except under pressure. The process by decomposition of the carbonate of ammonia is superior to the former in point of economy, despatch, and certainty, in small operations. This process may be followed either in the dry or moist way. The usual practice is to heat a solution of carbonate of potash in its own weight of water, with about half its weight of carbonate of ammonia, to about 130°, and to stir occasionally until, in the course of evaporation, small crystals begin to form. Ammonia is given off in great quantity, and the carbonic acid of the ammoniacal carbonate is appropriated by the carbonate of potash; so that under slow cooling crystals of bicarbonate of potash are formed. Wöhler says it may be speedily and cheaply prepared in the following manner:—Crude tartar is charred in an earthenware crucible, moistened with water, packed in a glass vessel, and subjected to a stream of carbonic acid gas. The gas is absorbed so fast that the heat produced must be kept down by cooling the vessel. When the absorption of gas ceases, the mass is lixiviated with water at 100° F., and crystals of pure bicarbonate form as the solution cools.—Christison.

This salt crystallizes in colourless, transparent, right oblique-angled prisms; it has a slightly alkaline taste, and scarcely acts upon turmeric paper. It suffers no change by exposure to the air. Heat expels carbonic acid from it, and reduces it to the state of carbonate. It requires four times its weight of water at 60° for solution, and rather less than its own weight of boiling water; it is insoluble in alcohol. Its specific gravity is 2.012. It is composed of two equivalents of carbonic acid 44, one equivalent of potash 48, and one equivalent of water 9.

The tests of the London College are—"Totally dissolved by water, and the solution slightly changes the colour of turmeric. Sulphate of magnesia throws down nothing from this solution unless it be heated. From 100 parts 30.7 are expelled by a red heat. After the addition of excess of nitric acid, chloride of barium throws down nothing, and nitrate of silver very little, if any thing. When not thoroughly converted into bicarbonate of potash, the action of the solution upon turmeric paper is stronger. If any magnesia be precipitated from the sulphate without the application of heat, it also denotes the existence of an imperfect bicarbouate. The 30.7 parts expelled by heat are carbonic acid and water; if the crystals be not dry the loss of water will be greater; and if the carbonic acid be deficient it will be diminished. The non-action of chloride of barium, after saturation with nitric acid, proves the absence of sulphates, and the slight precipitation usually occasioned by nitrate of silver shows but a minute portion of chlorides." The tests P.E.—"A solution in forty parts of water does not give a red brick precipitate with solution of corrosive sublimate; and, when supersaturated with nitric acid, is not affected by solution of nitrate of baryta or nitrate of silver."

It is incompatible with acidulous salts, borax, hydrochlorate of ammonia, alum, sulphate of magnesia, lime-water, and all the metallic salts, &c.

Potassii Cyanuretum—*Cyanuret of Potassium, U.S.*—Take of ferrocyanuret of potassium, in powder, 8 ounces; distilled water 6 fluid ounces. Expose the ferrocyanuret to a moderate heat until it becomes nearly white, and is wholly deprived of its water of crystallization. Put the residue in an earthen retort, with a beak loosely stopped, and expose it to a red heat for two hours, or till gas ceases to be disengaged. Withdraw the retort from the fire, close the orifice with lute, and then let the whole remain until quite cold. Break the retort, remove the black mass, reduce it to coarse powder, introduce it into a bottle of the capacity of twelve fluid ounces, and then add the distilled water. Agitate the mixture occasionally for half an hour, throw it on a filter, evaporate the filtered solution rapidly to dryness, and keep the dry mass in a closely-stopped bottle.—*United States.*

Cyanure de Potassium—*Cyanuret of Potassium, P.*—Take of ferrocyanuret of potassium 500 parts. Expose the ferrocyanuret,

coarsely powdered, to a moderate heat in a reverberatory furnace, in a proper vessel (which must be only half filled), with a tube attached to conduct the gas; when all the water of crystallization is expelled, increase the heat gradually until it is fused and gas is given off. Sustain the temperature, so as to render the disengagement of gas regular and gentle; and when no more is given forth increase to a red heat, which maintain for a quarter of an hour; withdraw the crucible from the fire, and close the extremity of the tube with luting, and allow it to remain until quite cold. Break the retort; remove the upper layer, which consists of well-fused white enamel; this is the cyanuret of potassium; detach it carefully with a knife, and put into well-stopped bottles. Remove also the spongy black mass which is found beneath, and put it also into well-closed bottles.—*Paris Codex.*

Cyanuret of potassium, thus prepared, is a white powder, having a sharp, somewhat acid taste, and an alkaline reaction. It is deliquescent in moist air, very soluble in water, and sparingly soluble in alcohol. Its solution, when exposed to the air, exhales the odour of hydrocyanic acid, and, when recently made, does not effervesce on the addition of an acid.

Chlorate de Potasse—*Chlorate of Potash, P.*—Take of carbonate of potash (potashes) 2,000 parts. Dissolve in so much water to obtain a solution of the density of about 1300; filter; put the solution into a Woulf's apparatus of three bottles, and pass through it a current of chlorine. When it is saturated with chlorine, which is known by the yellow colour it then acquires, remove the apparatus, and expose it to the air for a short time, to allow the excess of chlorine to escape; separate the salts which have deposited, and dry them. Boil the supernatant liquor, to decompose the hydrochlorite of potash which it contains, and allow it to cool; collect the crystals which deposit on cooling, and add them to the others; treat the whole of the crystals with twice their weight of boiling distilled water, which dissolves all the chlorate of potash; filter; allow it to crystallize. Dissolve and crystallize a second time, to obtain the salt quite pure.—*Paris Codex.*

When chlorine gas comes in contact with a solution of carbonate of potash, three salts are formed—chloride of potassium, hypochlorite of potash, and bicarbonate of potash. In proportion as the quantity of chlorine increases, the bicarbonate becomes decomposed, carbonic acid is evolved, and a further quantity of hypochlorite of potash and chloride of potassium is produced. By the reaction of the carbonic acid on some hypochlorite of potash, a portion of hypochlorous acid is set free, which gives the liquor a yellow tinge. When the solution is strongly charged with hypochlorite, the action of the chlorine on the potash is somewhat changed; it abstracts the potassium from the potash, and thereby forms chloride of potassium, while the oxygen thus set free combines with some hypochlorite of potash, and thereby converts it into the chlorate, the greater part of which crystallizes. The residual liquor contains a little chlorate, some free hypochlorous acid, and a considerable quantity of hypochlorite of potash and chloride of potassium.

The preceding process is attended with some practical difficulties, to obviate which Professor Graham recommends that carbonate of potash be mixed intimately with an equivalent quantity of dry hydrate of lime, and the mixture exposed to chlorine gas; the products are carbonate of lime, chlorate of potash, and chloride of potassium.—Pereira.

"Chlorate of potash is usually in the form of colourless, tabular crystals, of a cooling taste, somewhat similar to that of nitre. When heated strongly it fuses, gives out oxygen, and is converted into chloride of potassium. It enlivens the combustion of burning fuel like nitre; and, when mixed with various inflammable substances, as sulphur or phosphorus, it explodes, when the mixture is struck or exposed to heat. When rubbed in the dark it becomes luminous. It is soluble in two parts of boiling water, and in about twelve parts at 60°. It consists of one eq. of chloric acid 76, and one eq. of potash 48."

The tests of the London College are—"Totally dissolved by distilled water. The solution throws down nothing on the addition of nitrate of silver. It liquefies by heat, and if it be more strongly urged it yields oxygen, and is converted into chloride of potassium. A little sulphuric acid dropped on the crystals, the salt first becomes yellow, afterwards red, and gives out peroxide of chlorine: if any chloride of potassium be present, then nitrate of silver gives a precipitate of chloride of silver. One hundred grains yield nearly thirty-nine grains of oxygen, and leave sixty-one of chloride of potassium."

Potassa cum Calce—*Potash with Lime, L.*—Take of hydrate of potash, lime, each an ounce. Rub them together, and keep them in a well-stopped vessel.—*London.*

Potassa cum Calce—*Potash with Lime, E.*—Take any convenient quantity of aqua potassæ; evaporate it in a clean covered iron vessel to one third of its volume; add slaked lime till the fluid has the consistence of firm pulp; preserve the product in carefully-covered vessels.—*Edinburgh.*

Potassa Caustica cum Calce—*Caustic Potassa with Lime, D.*—Evaporate water of caustic potassa to one fourth part; then add as much fresh-burnt lime in powder as will form a mass of a proper consistence, which is to be preserved in a well-stopped bottle.—*Dublin.*

It is intensely caustic and alkaline to the taste, soluble in a very large proportion of water, and not entirely soluble in rectified spirit.

Potassæ Hydras—*Hydrate of Potash, L.*—Take of solution of potash a gallon; evaporate the water in a clean iron vessel over the fire until, the ebullition being finished, the hydrate of potash solidifies; pour this into proper moulds.—*London.*

Potassa—*Potash, E.*—Take any convenient quantity of aqua potassæ, evaporate it in a clean and covered iron vessel, increasing gradually the heat till an oily-looking fluid remains, a drop of which, when removed on a rod, becomes hard on cooling. Then pour out the liquid upon a bright iron plate, and, as soon as it solidifies, break it quickly, and put it into glass secured with glass stoppers.—*Edinburgh.*

Potassæ Caustica—*Caustic Kali, D.*—Take of solution of caustic potassa any quantity. Evaporate it over the fire in a clean iron vessel until, the ebullition having ceased, the saline matter, on increasing the heat, remains almost quiescent in the vessel. Pour out the melted salt upon a clean iron plate; and, while it is concreting, let it be cut into proper pieces, which must be immediately put into a vial closely stopped. During the evaporation the operator must avoid the drops which may be thrown out from the vessel.—*Dublin.*

Potasse Caustique a la Chaux—*Caustic Potash, P.*—Take of carbonate of potash of commerce 2,000 parts; quick lime 1,000 parts; water 25,000 parts. Slake the lime, and then dilute it with five or six times its weight of water. Dissolve the carbonate of potash; boil the solution, and add by degrees the milk of lime, so as not to interrupt the ebullition; stir the mixture and maintain it boiling during half an hour, replacing from time to time the water which evaporates. Then pass the mixture through a cloth, to separate the carbonate of lime from the liquid; wash the residue with care. Mix all the clear liquors, and evaporate rapidly to dryness in a silver vessel; heat the product until it is in a state of igneous fusion. Form it then either into pastiles or sticks, and preserve in well-stopped bottles.—*Paris Codex.*

"In preparing the hydrate of potash the solution of potash should be recently prepared; to procure it as free as possible from carbonic acid, the evaporation should be carried on very quickly, and the temperature maintained at boiling point. The contact of all organic substances, and of all the common metals except iron or silver, must be carefully avoided; the air must be excluded when the material is cold."

Hydrate of potash is sold in the form of fragments of plates or o cylindrical pencils, of a grey colour; when pure it is white, but, as usually prepared for medicinal purposes, it contains the various slight impurities of the solution, and frequently peroxide of iron, acquired during evaporation. It is extremely deliquescent, attracting moisture and carbonic acid from the atmosphere. It is intensely caustic, and powerfully corrodes the soft animal textures. It is soluble in alcohol, and dissolves in less than its own weight of water at 60°. When heated to 360° it melts, and at a red heat is volatilized. Its specific gravity is 1.706. It unites with sulphur, the acids, many of the metallic oxides, and the fixed oils. It is composed of one eq. of potash 48, and one eq. of water 9.

The tests of the London College are—"In an open vessel it speedily liquefies. It is totally soluble in alcohol." The tests P. E. are—"Boiling water commonly leaves oxide of iron undissolved, which should not exceed 1.25 per cent.: the solution supersaturated with nitric acid gives a faint precipitate with solution of nitrate of baryta, and more with solution of nitrate of silver, owing to the presence of impurities."

Potassii Iodidum—*Iodide of Potassium, L.*—Take of iodine 6 ounces; carbonate of potash 4 ounces; iron filings 2 ounces; distilled water 6 pints. Mix the iodine with four pints of the water, and add the iron, stirring them frequently with a spatula for half an hour. Apply a gentle heat, and, when a greenish colour occurs, add the carbonate of potash, first dissolved in the two pints of water, and strain. Wash what remains with two pints of boiling distilled water, and again strain. Let the mixed liquors be evaporated, so that crystals may be formed.—*London.*

Potassii Iodidum—*Iodide of Potassium, E.*—Take of iodine, dry, 5 ounces; fine iron wire 3 ounces; water 4 pints; carbonate of potash, dry, 2 ounces and 6 drachms. With water, iodine, and iron wire prepare the solution of iodide of iron as directed in the preparation of syrup of iodide of iron Ph. Ed. Add immediately, while it is hot, the carbonate of potash previously dissolved in a few ounces of the water, stir carefully, filter the product, and wash the powder on the filter with a little water. Concentrate the liquor at a temperature short of ebullition till a dry salt be obtained, which is to be purified from a little red oxide of iron and other impurities, by dissolving it in less than its own weight of boiling water, or, still better, by boiling it in twice its weight

of rectified spirit, filtering the solution, and setting it aside, to crystallize. More crystals will be obtained by concentrating and cooling the residual liquor.—*Edinburgh.*

Potassæ Hydriodas—*Hydriodate of Potassa, D.*—Take of iodine 1 part; sulphuret of iron, rubbed into coarse powder, 5 parts; sulphuric acid 7 parts; distilled water 48 parts; solution of carbonate of potassa a sufficient quantity; rectified spirit 6 parts. Mix, by rubbing, the iodine with sixteen parts of water, and put the mixture into a glass vessel. The sulphuret being put into the matras, pour over it the acid previously diluted with thirty-two parts of water; and a tube being adapted to the neck of the matras, and dipping to the bottom of the vessel containing the iodine and water, pass the gas through the mixture until the iodine disappear. Evaporate the filtered solution with a high temperature, and again filter. Then add, gradually, the solution of carbonate of potassa to saturate the acid, which is known by the effervescence ceasing. Let the mixture be set aside, in a warm place, until a dry residuary salt of a white colour be obtained; on this pour the spirit, and dissolve with heat. Finally, pour off the liquor from the salt, evaporate to dryness, and preserve the residue in a close vessel.—*Dublin.*

Potassii Iodidum—*Iodide of Potassium, U.S.*—Take of iodine 6 ounces; iron filings 3 ounces; carbonate of potassa 4 ounces, or a sufficient quantity; distilled water 4 pints. Mix the iodine with 3 pints of the distilled water, and add the iron filings, stirring frequently with a spatula for an hour. Apply a gentle heat, and, when the liquor assumes a greenish colour, add gradually the carbonate of potassa, previously dissolved in half a pint of the distilled water, until it ceases to produce a precipitate. Continue the heat for half an hour, and then filter. Wash the residuum with half a pint of the distilled water, boiling hot, and filter. Mix the filtered liquors, and evaporate, so that crystals may form. Pour off the liquid, and dry the crystals on bibulous paper.—*United States.*

Iodure de Potasse—*Iodide of Potassium, P.*—Take of iodine 100 parts; iron filings 30 parts; distilled water 500 parts; carbonate of potash Q.S. Mix the iodine with the water and add the iron filings; stir them frequently, and heat gently until the liquor has become almost colourless. Filter, and wash the remaining filings with a little water, which is to be added to the other. Then add solution of carbonate of potash, by degrees, until it does not occasion more precipitate. Filter; wash the precipitate very carefully with water, which add to the bright liquor, and evaporate to dryness in a sandbath. Redissolve the product in about four or five times its weight of water; filter; evaporate in a porcelain vessel, and allow it to cool slowly, to obtain crystals of iodide of potassium; submit the mother liquor to further evaporation.—*Paris Codex.*

Of the numerous processes which there are for making iodide of potassium, three are preferred to the rest. The first consists in converting iodine into hydriodic acid, by a stream of sulphuretted hydrogen gas, saturating the acid by means of carbonate of potash, and then obtaining the iodide of potassium by evaporating the solution to dryness. Its disadvantages are, that it is noisome and tedious, unless the iodine is kept in agitation through the water during the transmission of the gas; but the salt obtained is pure, if the manipulations be carried on with care. The second method consists in first making a mixture of iodide of potassium and iodate of potash by saturating a solution of caustic potash with iodine, and then heating the residuum of evaporation to a red heat, so as to convert the iodate into iodide. This method is disadvantageous, inasmuch as caustic potash is an expensive material, and the whole manipulations require to be conducted with much nicety. The third process, which is that of the four Pharmacopœias, and which has also been generally practised of late by manufacurers, commences with the formation of a solution of iodide of iron. This salt is then decomposed by a solution of carbonate of potash, the iron and potassium exchanging places, so that the carbonate of protoxide of iron falls down, and iodide of potassium comes into the solution. This appears to be the most convenient method of all yet proposed, and it is certainly the cheapest.—Christison.

Iodide of potassium when of good quality is colourless, opaque, inodorous, and crystallizes in cubes, which contain no water; it has often a faint peculiar odour of iodine, and a pale yellowish tint, from a slight excess of that substance. It is slightly deliquescent in moist atmosphere. It is soluble in two thirds of its own weight of temperate water, and in still less at 212°. It is very soluble in rectified spirit. It fuses at a red heat, and at a very high temperature is volatilized without suffering decomposition. It is composed of one equivalent of iodine 126, and one equivalent of potassium 40.

It is exceedingly subject to adulteration, both from faulty manufacture and from fraudulent admixture. The tests of the London College are—"Totally soluble in water and in alcohol. It alters the colour of turmeric either not at all or very slightly. It does not alter the colour of litmus. Subjected to heat, it loses no weight. Sulphuric acid and starch added together, it becomes blue. Ten grains of this salt are sufficient to decompose 10.24 grains of nitrate of silver; what is precipitated is partly dissolved by nitric acid and partly altered in appearance, which is not the case when ammonia is added:—The non-action upon turmeric and litmus proves the absence of an alkali or acid. It contains no water of crystallization, and therefore any loss occasioned by heat is mere adherent moisture. It is decomposed by sulphuric acid, and the iodine set free produces the characteristic blue colour by acting upon the starch. If it decomposes a larger proportion of nitrate of silver than above stated, it is probably owing to the presence of chloride of potassium. Iodide of silver is nearly insoluble in ammonia; when nitrate of silver is added to iodide of potassium, as long as precipitation occurs, the precipitate, treated with excess of ammonia and supersaturated with nitric acid, becomes merely slightly opalescent." The tests P. E. are—"Its solution is not affected, or is merely rendered hazy, by solution of nitrate of baryta: a solution of five grains in a fluid ounce of distilled water, precipitated by an excess of solution of nitrate of silver, and then agitated in a bottle with a little liq. ammoniæ, yields quickly by subsidence a clear supernatant liquid, which is not altered by an excess of nitric acid or is rendered merely hazy."

It is incompatible with acids, acidulous and metallic salts.

Liquor Potassii Iodidi Compositus—*Compound Solution of Iodide of Potassium, L.*—Take of iodide of potassium 10 grains; iodine 5 grains; distilled water a pint. Mix, that they may be dissolved.—*London.*

Iodinei Liquor Compositus—*Compound Solution of Iodine, E.*—Take of iodine 2 drachms; iodide of potassium an ounce; distilled water 16 fluid ounces. Dissolve the iodide and iodine in the water with a gentle heat and agitation.—*Edinburgh.*

Liquor Iodini Compositus—*Compound Solution of Iodine, U.S.*—Take of iodine 6 drachms; iodide of potassium an ounce and a half; distilled water a pint. Dissolve the iodine and iodide of potassium in the water.—*United States.*

In this mixture the iodide of potassium, by uniting with an additional portion of iodine, renders it soluble in water; it has been called ioduretted iodide of potassium. It is a brownish-coloured solution, and has the peculiar smell and taste of iodine, and its reaction on starch.—Phillips.

Liquor Potassæ—*Solution of Potash, L.*—Take of carbonate of potash 15 ounces; lime 8 ounces; distilled water, boiling, a gallon. Dissolve the carbonate of potash in half a gallon of the water. Sprinkle a little of the water upon the lime in an earthen vessel, and, the lime being slaked, add the rest of the water. The liquors being immediately mixed together in a close vessel, shake them frequently until they are cold. Then set by the mixture, that the carbonate of lime may subside. Lastly, keep the supernatant liquor, when poured off, in a well-stopped green glass bottle.—*London.*

The sp. gr. of this solution is 1.063.

Potassæ Aqua—*Water of Potash, E.*—Take of carbonate of potash (dry) 4 ounces; lime recently burnt 2 ounces; water 45 fluid ounces. Let the lime be slaked and converted into milk of lime with 7 fluid ounces of the water. Dissolve the carbonate in the remaining 38 fluid ounces of water; boil the solution, and add to it the milk of lime in successive portions about an eighth at a time, boiling briskly for a few minutes after each addition. Pour the whole into a deep narrow glass vessel for twenty-four hours; and then withdraw with a syphon the clear liquor, which should amount to at least 35 fluid ounces, and ought to have a density of 1072.—*Edinburgh.*

Aqua Potassæ Caustica—*Water of Cautic Potash, D.*—Take of lime fresh burnt, carbonate of potassa, each 2 parts; water 15 parts. Pour upon the lime, put into an earthen vessel, one part of the water made hot; and when it is slaked mix the salt with the lime, and the rest of the water. Pour the materials, as soon as they are cold, into a well-stopped bottle, and keep it for three days, frequently shaking the bottle; after the carbonate of lime shall have subsided, pour off the supernatant liquor, and preserve it in well-closed green glass bottles.—*Dublin.*

The sp. gr. of this solution is 1.080.

Liquor Potassæ—*Solution of Potash, U.S.*—Take of carbonate of potassa a pound; lime half a pound; boiling distilled water a gallon. Dissolve the carbonate of potassa in half a gallon of the water. Pour a little of the water on the lime, and when it is slaked add the remainder. Mix the hot liquors and boil for ten minutes, stirring constantly; then set the mixture aside, in a covered vessel, until it becomes clear. Lastly, pour off the supernatant liquor, and keep it in well-stopped bottles of green glass. The sp. gr. of this solution is 1.056.—*United States.*

"The rationale of these processes is very obvious: the lime attracts the carbonic acid of the carbonate of potassa, and leaves its alkaline base in a state of purity dissolved in the water. In order to procure a proper preparation, tolerably pure carbonate of potash must be used; good spring water is sufficient for pharmaceutic solution; but for a pure one distilled water must be used as the London College directs. Filtration is advantageously dispensed with, and subsidence is to be preferred. The decomposition of the carbonate is generally

accelerated by ebullition, which has likewise the advantage of increasing the density of the particles of carbonate of lime that is formed, and so rendering their subsidence more complete. The last-mentioned object is further secured by adding the milk of lime in successive portions, and renewing the ebullition after each.

"Solution of potash is colourless and inodorous, and so caustic as not to admit of being tasted; when rubbed between the fingers it feels soapy, in consequence of a partial solution of the cuticle. It turns turmeric brown, reddened litmus purple, and infusions of violets, red cabbage, and most blue vegetable colours green. It rapidly absorbs carbonic acid from the air; which must, therefore, be carefully excluded from the bottles in which it is kept. Solution of potash decomposes the salts of ammonia and disengages that alkali, also the earthy salts, throwing down oxides of the earthy metalloids, likewise most metallic salts. It saponifies most oils and fats, converting the neutral principles of which they are composed into fatty acids, which unite with the potash to form soaps, or fatty salts of definite composition."

The tests of the London College are—"Its specific gravity is 1.063. It strongly changes the colour of turmeric to brown. Dilute nitric acid being added, but very few or no bubbles of carbonic acid are given out; from the saturated solution scarcely anything whatever should be precipitated either by carbonate of soda, chloride of barium, or nitrate of silver. From this solution, or from any salt of potash dissolved in water, the precipitate thrown down by chloride of platina is yellowish: its reaction upon turmeric evinces the well-known alkaline power of potash. If much carbonic acid be given out on the addition of the nitric, it shows that the lime used in preparing the solution was deficient in quantity or quality. When converted into nitrate of potash by means of nitric acid, if it give a precipitate with carbonate of soda, some earthy or metallic impurity is present; if with chloride of barium, a sulphate; and if with nitrate of silver, a chloride renders the solution impure. The yellow precipitate yielded by chloride of platina is a double chloride of potassium and platina, which distinguishes potash and its salts from soda and its compounds."

It is incompatible with acids, acidulous salts; sesquicarbonate, acetate, and hydrochlorate of ammonia; preparations of metals and earths held in solution by acids; chloride and bichloride of mercury.

Liquor Potassæ Effervescens—*Effervescing Solution of Potash, L.*—Take of bicarbonate of potash a drachm; distilled water a pint. Dissolve the bicarbonate of potash in the water; and pass into it of carbonic acid, compressed by force, more than sufficient for saturation. Keep the solution in a well-stopped vessel.—*London.*

Potassæ Aqua Effervescens—*Effervescing Solution of Potash, E.*—Take of bicarbonate of potash 1 drachm; distilled water 1 pint. Dissolve the salt in the water, and transmit through the solution carbonic acid gas under strong pressure.—*Edinburgh.*

"It is intended by the excess of carbonic acid to render the medicine less disagreeable."

Liquor Potassæ Citratis—*Solution of Citrate of Potassa, U.S.*—Take of fresh lemon juice half a pint; carbonate of potassa a sufficient quantity. Add the carbonate of potassa gradually to the lemon juice till it is perfectly saturated; then filter. Or, take of citric acid half an ounce; oil of lemons 2 minims; water half a pint; carbonate of potassa a sufficient quantity. Rub the citric acid with the oil of lemons, and afterwards with the water, till it is dissolved; then add the carbonate of potassa gradually till the acid is perfectly saturated; lastly, filter.—*United States.*

Potassæ Nitras Purificatum—*Purified Nitrate of Potash, D.*—Take of nitrate of potash 1 part. Dissolve it in two parts of boiling water, and set the solution aside, to cool and crystallize.—*Dublin.*

Nitrate de Potasse Fondu—*Fused Nitrate of Potash, P.*—Take of nitrate of potash any quantity. Fuse it in an Hessian crucible, and pour it on a marble or stone surface to cool.—*Paris Codex.*

Nitrate of potash exists naturally, and may be formed artificially. The greater proportion of what is used in Great Britain is obtained in various parts of the East Indies by lixiviating certain kinds of soil. It is prepared likewise in many parts of Europe from soils artificially impregnated with animal matter, or from the mortar of old buildings, especially of the underground floor; or from artificial composts consisting of animal substances, decaying vegetables, ashes, and chalk, marl, or lime.

Nitrate of potash is composed of fifty-four parts nitric acid, and forty-eight parts potash. It is generally but little adulterated.

The tests of the London College are—"Totally dissolved by distilled water. Neither chloride of barium nor nitrate of silver precipitates anything from the solution. It liquefies by heat, and in a strong fire it yields oxygen, and the salt remaining, rubbed to powder, gives nitrous vapours by sulphuric acid. The non-action of chloride of barium and nitrate of silver proves the absence of a sulphate or a chloride. By heat and the loss of oxygen it becomes hyponitrate of potash, which the sulphuric acid decomposes, with the extrication of red vapours." The tests Ph. Ed. are—"Entirely soluble; its solution is not affected by solution of nitrate of baryta, and faintly or not at all by solution of nitrate of silver."

Potassæ Sulphas—*Sulphate of Potash, L.*—Take of the salt which remains after the distillation of nitric acid 2 pounds; water, boiling, 2 gallons. Ignite the salt in a crucible until the excess of sulphuric acid is entirely expelled; then boil it in the two gallons of water until a pellicle floats, and the liquor being strained, set it aside, that crystals may be formed. The liquor being poured off, dry them.—*London.*

Potassæ Sulphas—*Sulphate of Potash, E.*—Take of the residuum of the preparation of pure nitric acid 2 pounds; boiling water 2 gallons; white marble, in powder, a sufficiency. Dissolve the salt in the water; add the marble gradually till effervescence ceases, and the solution is completely neutralized; filter the liquid, and evaporate it till a pellicle forms on its surface; then set it aside, to cool and form crystals.—*Edinburgh.*

Sulphas Potassæ—*Sulphate of Potassa, D.*—Dissolve the salt which remains after the distillation of nitric acid in a sufficient quantity of warm water. Add as much carbonate of potassa as will saturate the superfluous acid. Let the filtered solution be evaporated with heat, that crystals may be formed.—*Dublin.*

The salt remaining after the distillation of nitric acid is composed of bisulphate of potash and water. The first step is to remove or neutralize the excess of acid. The Dublin College saves the excess of acid by neutralizing it with carbonate of potash. The London College more economically expels the acid by heat; and the Edinburgh College neutralizes the excess of acid with marble. The other part of the process is simply the evaporation and crystallization of the neutral sulphate.

Sulphate of potash is in the form of crystals, six-sided prisms; transparent, colourless, and permanent in the air; of a bitter, saline taste. It is soluble in five parts of boiling water, and in sixteen parts at 60°; it is insoluble in alcohol or rectified spirit. It is composed of one eq. of sulphuric acid 40, and one eq. of potash 48.

It is so cheap that it is scarcely subject to adulteration. The tests of the London College are—"Insoluble in alcohol, and slightly soluble in distilled water. What is thrown down from the solution by chloride of platina is yellowish, and by chloride of barium is white, and insoluble in nitric acid."

Sulphate of potash is incompatible with tartaric acid, chloride of barium, barytes-water, and chloride of calcium; it also decomposes the solutions of acetate and diacetate of lead.

Potassæ Bisulphas—*Bisulphate of Potash, L.*—Take of the salt which remains after the distillation of nitric acid 2 pounds; sulphuric acid a pound; water boiling 6 pints. Dissolve the salt in the water, and add the acid to it, and mix. Lastly, boil down, and set aside the solution, that crystals may be formed.—*London.*

Potassæ Bisulphas—*Bisulphate of Potash, E.*—Take of the residuum in the preparation of pure nitric acid 2 pounds; sulphuric acid (commercial) 7 fluid ounces and 1 fluidrachm; boiling water 6 pints. Dissolve the salt in the water, add the acid, concentrate the solution, and set it aside, to cool and form crystals.—*Edinburgh.*

Potassæ Bisulphas—*Bisulphate of Potassa, D.*—Take of the sulphuric acid of commerce 2 parts; common carbonate of potassa a sufficient quantity; water 6 parts. Mix one part of the sulphuric acid with the water, and saturate it with the carbonate of potassa. Then add the other part of the sulphuric acid, and evaporate the fluid until crystals form on cooling.—*Dublin.*

"When the bisulphate of potash is dissolved in water, and the solution allowed to crystallize, it occasionally happens that some sulphate and sesquisulphate are mixed with the bisulphate, owing to the partition of the excess of sulphuric acid between the water and the sulphate of potash. This inconvenience is remedied by the addition of sulphuric acid now directed to be employed. When prepared according to the Dublin process by diluting commercial sulphuric acid, neutralizing it with carbonate of potash, then adding as much acid as was used at first, and evaporating the solution, crystals cannot be obtained; because if no more acid be present than is required to form a bisulphate, and the evaporation be stopped at an earlier stage than that indicated in the formula, the crystals which separate on cooling are chiefly neutral sulphate. In order to obtain crystals of bisulphate a large excess of sulphuric acid must be used."

Bisulphate of potash forms small oblique four-sided prisms when crystallized; and, when obtained by extreme concentration and cooling, it has the appearance of a firm fibrous white mass. It has a strong acid taste, and is very soluble in water. When exposed to a red heat, the water of crystallization and half the acid are expelled, and simple sulphate of potassa remains. It is composed of two eqs. of sulphuric acid 80, one eq. of potash 48, and two eqs. of water.

It is incompatible with alkalis, earths, and their carbonates.

Potassæ Sulphas cum Sulphure—*Sulphate of Potash with Sulphur, E.*—Take of nitrate of potash and sulphur equal parts. Mix them thoroughly; throw the mixture in small successive portions into a red-hot crucible; and when the deflagration is over, and the salt has cooled, reduce it to powder, and preserve it in well-closed bottles.—*Edinburgh.*

When a mixture of sulphur and nitre is projected in small quantities at a time into a heated crucible, the sulphur burns with a blue flame, and becomes oxidated at the expense of the nitric acid in the nitre. A greyish-white substance remains, whose nature has not been hitherto ascertained. It is much more soluble than sulphate of potash; and it crystallizes from a state of solution in rhombic prisms, the primitive form of that salt. Both the substance itself and its solution have a sulphureous odour; but sulphuretted hydrogen is not disengaged on a strong acid being added; nor is sulphuret of lead thrown down by the salts of that metal. The salts of baryta cause a white precipitate insoluble in nitric acid, so that sulphate of potash is present.—CHRISTISON.

POTASSII SULPHURETUM—*Sulphuret of Potassium, L.*—Take of sulphur an ounce; carbonate of potash 4 ounces. Rub them together, and place them upon the fire in a covered crucible, until they have united.—*London.*

POTASSII SULPHURETUM—*Sulphuret of Potassium, E.*—Take of sulphur 1 ounce; carbonate of potash 4 ounces. Triturate them well together, and heat them in a covered crucible till they form a uniform fused mass, which, when cold, is to be broken into fragments, and kept in a well-closed vessel.—*Edinburgh.*

SULPHURET POTASSÆ—*Sulphuret of Potassia, D.*—Take of carbonate of potassa 4 parts; sublimed sulphur 1 part. Rub them together, and put them into a large covered crucible, and, having adapted to it a cover, expose it to fire gradually raised until they unite.—*Dublin.*

POTASSII SULPHURETUM—*Sulphuret of Potassium, U.S.*—Take of sulphur an ounce; carbonate of potassa 2 ounces. Rub the carbonate of potassa, previously dried, with the sulphur; melt the mixture in a covered crucible over the fire; then pour it out, and when it is cold put it into a bottle, which is to be well stopped.—*United States.*

POLYSULFURE DE POTASSIUM—*Polysulphuret of Potassium, P.*—Take of sublimed sulphur 100 parts; carbonate of potash 200 parts. Mix them exactly in a mortar; fuse them with a gentle heat in a covered earthen crucible; maintain the same temperature until it swells up; when it sinks down, increase the heat a little, to complete the fusion; remove from the fire, and, when quite cold, break the vessel, divide the sulphuret into fragments, and preserve in well-stopped bottles. The product is a mixture of bisulphuret of potassium and sulphate of potash.—*Paris Codex.*

POTASSÆ SULPHURETI AQUA—*Water of Sulphuret of Potassium, D.*—Take of washed sulphur 1 part; solution of potash 11 parts. Boil for ten minutes, filter, and preserve the liquid in well-closed vessels. Its density is 1117.—*Dublin.*

POLYSULFURE DE POTASSIUM LIQUIDE—*Solution of Polysulphuret of Potassium, P.*—Take of polysulphuret of potassium 100 parts. Dissolve in the least possible quantity of water; filter quickly, and add so much water that the solution has the sp. gr. of 1260. This contains about a third of its weight of liver of sulphur; it must be preserved in well-stopped bottles.—*Paris Codex.*

PERSULFURE DE POTASSIUM—*Persulphuret of Potassium, P.*—Take of sublimed sulphur 100 parts; caustic solution of potash 300 parts. Add the sulphur to the solution of potash, and dissolve with the aid of a gentle heat. This solution should have the sp. gr. of 1412; it contains about half its weight of persulphuret of potassium. It must be preserved in well-stopped bottles.—*Paris Codex.*

"When the requisite proportions of sulphur and carbonate of potash are heated together, the carbonc acid is expelled, and three fourths of the potash (oxide of potassium) are decomposed: the oxygen of this proportion combines with part of the sulphur to form sulphuric acid, and this acid uniting with the one fourth of undecomposed potash, sulphate of potash results. The potassium of the decomposed potash combines also with sulphur, and sulphuret of potassium is formed; so that, when the operation has been properly conducted, the potassii sulphuretum of the Pharmacopœia is chiefly a compound of sulphuret of potassium and sulphate of potash. In preparing sulphuret of potassium it is better to expose the carbonate in a crucible to a red heat, previously to its being rubbed with the sulphur, in order to dissipate the water of the carbonate, and to expel a portion of the carbonic acid."

Properly and recently-prepared sulphuret of potassium is hard, of a liver-brown colour, a disagreeable, acrid, alkaline taste; it is inodorous while dry, but, when moistened, a powerful odour of sulphuretted hydrogen is disengaged; it is soluble in water. By exposure to the air it soon spoils, it gradually absorbs oxygen, and undergoes a series of changes, which end in the formation of sulphate of potash and free sulphur as the only constituents. According to Phillips, it is composed of three equivalents of sulphuret of potassium 168, and one equivalent of sulphate of potash 88. It is decomposed by acids, they expelling sulphuretted hydrogen, and precipitating sulphur; by solutions of most of the metals, which, uniting with the sulphur, are precipitated in the form of sulphuret.

POTASSÆ TARTRAS—*Tartrate of Potash, L.*—Take of bitartrate of potash, powdered, 3 pounds; carbonate of potash 16 ounces, or as much as may be sufficient; water, boiling, 6 pints. Dissolve the carbonate of potash in the boiling water, then add the bitartrate of potash, and boil. Strain the liquor, and afterwards boil it down until a pellicle floats, and set it aside, that crystals may be formed. The liquor being poured off, dry these, and again evaporate the liquor, that crystals may be produced.—*London.*

POTASSÆ TARTRAS—*Tartrate of Potash, E.*—Take of bitartrate of potash 3 pounds; carbonate of potash 16 ounces, or a sufficiency; boiling water 6 pints. Dissolve the carbonate in the water, add the bitartrate till the liquor is neutralized, boil, and filter. Concentrate the liquor till a pellicle forms on its surface, and then set it aside, to cool and crystallize. The residual liquor will yield more crystals by further concentration and cooling.—*Edinburgh.*

POTASSÆ TARTRAS—*Tartrate of Potassa, D.*—Take of common carbonate 5 parts; bitartrate of potash 15 parts; boiling water 45 parts. To the carbonate of potassa, dissolved in the water, gradually add the bitartrate rubbed to subtile powder; filter the solution through paper, evaporate, and set it aside, that crystals may be formed as it cools.—*Dublin.*

POTASSÆ TARTRAS—*Tartrate of Potassa, U.S.*—Take of carbonate of potash 16 ounces; bitartrate of potash in fine powder 3 pounds, or a sufficient quantity; boiling water a gallon. Dissolve the carbonate of potassa in the water; then gradually add the bitartrate of potassa to the solution till it is perfectly saturated, and boil. Filter the liquor, evaporate it until a pellicle forms, and set it aside, to crystallize. Pour off the liquid, and, having dried the crystals on bibulous paper, keep them in closely-stopped bottles.—*United States.*

TARTRATE NEUTRE DE POTASSE—*Neutral Tartrate of Potassa, P.*—Take of bitartrate of potassa 1,000 parts; water 4,000 parts; carbonate of potassa Q. S. Boil the water in a silver or tinned vessel, and add to it the bitartrate of potassa. Add then by degrees the carbonate of potassa (stirring continually) until it ceases to produce effervescence. Filter the neutral solution, evaporate to the density of 1450, and set by in a stove, to crystallize.—*Paris Codex.*

"In these processes the excess of acid of the bitartrate is saturated by the potash of the carbonate, the carbonic is expelled, and a neutral tartrate remains. The quantity of alkali required for this purpose must necessarily vary, owing to the degree of dryness of the carbonate employed. To obtain regular crystals a very slow, nearly spontaneous, evaporation is necessary; and therefore this salt, as found in the shops, and prepared on a large scale, is in the form of a white granular powder, which is produced by the evaporation being continued to dryness with frequent stirring. It has a saline bitter taste; it is soluble in its own weight of water (Geiger); in less than twice its weight of water (Phillips); it is almost insoluble in alcohol. It attracts moisture in damp air, but does not deliquesce; by a red heat it is decomposed and converted into carbonate of potash. When properly prepared it does not alter the colour of either litmus or turmeric. It is composed of one eq. tartaric acid 66, and one eq. of potash 48."

The tests of the London College are—"Readily dissolved by water; from the solution almost any acid throws down crystals of bitartrate of potash, most of which adhere to the vessel. Whatever is precipitated from the same solution by chloride of barium or acetate of lead is dissolved by dilute nitric acid: if the tartrate of potash contain any sulphate, the precipitates yielded by chloride of barium and acetate of lead do not dissolve in nitric acid."

The tests Ph. Ed.—"Entirely and easily soluble in four parts of boiling water; solution neutral, and yielding a crystalline precipitate with muriatic acid; forty-four grains in solution are not entirely precipitated by fifty-five grains of nitrate of lead."

Tartrate of potash is incompatible with most acids and many acidulous salts, by lime-water and chloride of calcium, and by solutions of lead and silver.

TARTRATE BORICO-POTASSIQUE — *Boro-Tartrate of Potash — Soluble Cream of Tartar, P.*—Take of bitartrate of potash 400 parts; crystallized boracic acid 100 parts; water 2,400 parts. Dissolve the salt and acid in the water with heat; and evaporate to syrupy consistence over the fire, stirring continually; spread it thin on plates, and dry. It must be preserved in well-stopped bottles.—*Paris Codex.*

PREPARATIONS OF SODA.

SODÆ ACETAS—*Acetate of Soda, D.*—Take of carbonate of soda any quantity; distilled vinegar enough to saturate the alkali. Evaporate the filtered solution until it attain the sp. gr. 12.76. Crystals form as the solution cools; they must be cautiously dried, and preserved in closly-stopped bottles.—*Dublin.*

ACÉTATE DE SOUDE—*Acetate of Soda, P.*—Take of carbonate of soda 100 parts; distilled vinegar Q. S. Saturate the acid with the alkali; filter the solution; evaporate to the sp. gr. 12.80, or until a slight pellicle forms on the surface; crystals form as the solution cools. The salt thus obtained should be dissolved and crystallized afresh to obtain it very pure.—*Paris Codex.*

"Acetate of soda has a bitter taste; is soluble in three parts of

water at 60° ; does not deliquesce, but loses its water of crystallization in a moderate temperature. It crystallizes in solid striated rhombic prisms. It is composed of one eq. of soda 32, and one of acetic acid 51.48."

SODÆ CARBONAS—*Carbonate of Soda, L.*—Take of impure carbonate of soda 2 pounds; distilled water 4 pints. Boil the impure carbonate of soda in the water, and strain it while hot. Lastly, set it by, that crystals may be formed.—*London.*

SODÆ CARBONAS—*Carbonate of Soda, D.*—Take of barilla, in powder, 1 part; water 2 parts. Boil the barilla in the water in a covered vessel for two hours, occasionally stirring; filter the liquor, then bruise the barilla that remains with an equal quantity of water, and again boil it; this may be repeated a third time. The leys being filtered and mixed, evaporate them to dryness in a wide iron vessel, taking care that the saline mass which shall remain be not again liquefied by too great a heat; stir it with an iron spatula till it become white; finally, dissolve it in boiling water, and, after due evaporation, set it apart, that, as it cools, crystals may form. These will be purer if the barilla, before each boiling, be exposed for some time to the action of the air. The crystallization should be effected when the temperature is at the freezing point, and in a liquor the specific gravity of which is, to that of water, as 1220 to 1000. If the salt be not very pure, repeat the solution and crystallization.—*Dublin.*

CARBONATE DE SOUDE CRYSTALLISÉ—*Crystallized Carbonate of Soda, P.*—Take of commercial carbonate of soda any convenient quantity. Dissolve it in five times its weight of hot water; filter the solution; evaporate it to the density of about 1250, and set it by in a cool place, to crystallize. After twenty-four hours' repose decant the supernatant liquor; dry the crystals, and preserve them in a well-closed vessel. Evaporate the mother liquors, and crystallize as before.—*Paris Codex.*

Carbonate of soda crystallizes in large transparent octahedrons, with a rhombic base, truncated at the angles, which contain a large quantity of water; they effloresce when exposed to the dry air, and crumble down into a white opaque powder. Its taste is alkaline and disagreeable. It is soluble in two parts of water at 60°, and in less than its own weight of boiling water. It is composed in the crystallized state, according to Phillips, of one eq. of carbonic acid 22, one eq. of soda 32, and ten eqs. of water 90.

It is incompatible with acids, acidulous salts, lime-water, hydrochlorate of ammonia, earthy and metallic salts.

The tests of the London College are :—"When freshly prepared it is translucent, but in an open vessel it in a short time falls to powder. It is totally soluble in water, but not at all in alcohol. It alters the colour of turmeric like an alkali. If usually pure, and saturated with nitric acid, it yields but little precipitate of chloride with the nitrate of silver, nor any sulphate of barytes with the chloride of barium."

SODÆ CARBONAS EXSICCATA—*Dried Carbonate of Soda, L.*—Take of carbonate of soda a pound. Apply heat to the carbonate of soda in a proper vessel until it is dried, and afterwards heat it to redness. Lastly, rub it to powder.—*London.*

SODÆ CARBONAS SICCATUM—*Dried Carbonate of Soda, E.*—Heat any convenient quantity of carbonate of soda in a shallow vessel till it is dry, then urge it with a red heat in a crucible, and reduce it to powder when cold.—*Edinburgh.*

SODÆ CARBONAS SICCATUM—*Dried Carbonate of Soda, D.*—Liquefy the crystals of carbonate of soda in a silver crucible over the fire; then, in an augmented heat, stir the dissolved salt until, by the evaporation of the water, it becomes dry. Reduce it to a fine powder, and preserve it in stopped vials.—*Dublin.*

SODÆ CARBONAS EXSICCATUS—*Dried Carbonate of Soda, U.S.*—Take of carbonate of soda a convenient quantity. Expose it to heat in a clean iron vessel until it is thoroughly dried, stirring constantly with an iron spatula; then rub it into powder.—*United States.*

Dried carbonate of soda consists of one eq. of carbonic acid 22, and one eq. of soda 32.

SODÆ SESQUICARBONAS—*Sesquicarbonate of Soda, L.*—Take of carbonate of soda 7 pounds; distilled water a gallon. Dissolve the carbonate of soda in the water, and strain; then pass carbonic acid into the solution to saturation, that the salt may subside. Dry this with a gentle heat, wrapped and pressed in cloth.—*London.*

SODÆ BICARBONAS—*Bicarbonate of Soda, E.*—Fill with fragments of marble a glass jar, open at the bottom, and tubulated at the top; close the bottom in such a way as to keep in the marble without preventing the free passage of a fluid; connect the tubulure closely by a bent tube and cock with an empty bottle, and this in like manner with another bottle filled with one part of carbonate of soda and two parts of dried carbonate of soda well triturated together; and let the tube be long enough to reach the bottom of the bottle. Before closing the last cock closely, immerse the jar to the top in diluted muriatic acid contained in any convenient vessel; when the whole apparatus is thus filled with carbonic acid gas, secure the last cork tightly; and let the action go on till next morning, or till gas is no longer absorbed by the salt. Remove the damp salt which is formed, and dry it, either in the air without heat, or at a temperature not above 120°.—*Edinburgh.*

SODÆ BICARBONAS—*Bicarbonate of Soda, D.*—Take of carbonate of soda 2 parts; water 5 parts. Dissolve; and, by means of a proper apparatus, transmit through the solution a stream of carbonic acid gas, extricated from white marble by means of diluted muriatic acid, until crystals are formed; then, with a heat not exceeding 120°, evaporate the fluid to obtain more crystals, which, being united with the former, are to be dried, and preserved in well-stopped bottles.—*Dublin.*

SODÆ BICARBONAS—*Bicarbonate of Soda, U.S.*—Take of carbonate of soda, in crystals, a convenient quantity. Break the crystals in pieces, and put them into a wooden box, having a transverse portion near the bottom, pierced with numerous small holes, and a cover which can be tightly fitted on. To a bottle having two tubulures and a half filled with water adapt two tubes, one connected with an apparatus for generating carbonic acid and terminating under the water in the bottle; the other commencing at the tubulure in which it is inserted, and entering the box by an opening near the bottom, beneath the partition. Then lute all the joints, and cause a stream of carbonic acid to pass through the water into the box until the carbonate of soda is fully saturated. Carbonic acid is obtained from marble by the addition of dilute sulphuric acid.—*United States.*

BICARBONATE DE SOUDE—*Bicarbonate of Soda, P.*—Take of crystallized carbonate of soda any convenient quantity. The directions are similar to the United States.—*Paris Codex.*

In preparing bicarbonate of soda on the great scale manufacturers have generally abandoned all the liquid processes in favour of the dry way, which is superior in economy, convenience, and despatch. The process commonly understood to be followed is that of the Codex, and, consequently, United States Pharmacopœia. The gas is quickly absorbed; at the same time a liquid charged with carbonate or sesquicarbonate trickles down to the bottom of the box, owing to the carbonate containing more water of crystallization than is required to constitute the bicarbonate: this liquid is commonly withdrawn from time to time; and, when absorption ceases, the salt is dried with a very gentle heat. A great improvement in this method in small operations, and one which will probably answer well on any scale, is the process now adopted by the Edinburgh College.

Bicarbonate of soda is usually sold in powder, or in the form of small white, opaque, irregular scales, of a saline, scarcely alkaline, not unpleasant taste, and permanent in the air. A moderate heat by expelling one equivalent of its acid, as well as its water, reduces it to the state of anhydrous carbonate. It is soluble in thirteen parts of temperate water, and in much less at 212°. It does not, like the carbonate, cause a white precipitate with sulphate of magnesia. It consists of one eq. of soda 32, two eqs. of carbonic acid 44, and one eq. of water 9.—CHRISTISON.

Bicarbonate of soda is only adulterated with carbonate of soda, through faulty preparation. The test of the Edinburgh College is—"A solution in forty parts of water does not give an orange precipitate with solution of corrosive sublimate, unless carbonate is present.

Sesquicarbonate of soda is inodorous, and in the form of minute indistinct crystals; it is much less soluble in water than the carbonate, and hence it crystallizes as it is formed. The solution acts, though slightly, on turmeric paper. Unlike the carbonate, it does not precipitate a solution of sulphate of magnesia, and its taste is much less alkaline and disagreeable. When strongly heated it loses half an equivalent of carbonic acid and all its water, and is reduced to anhydrous carbonate of soda. It is composed of one and a half eq. of carbonic acid 33, one eq. of soda, and two eqs. of water.—PHILLIPS.

The tests of the London College are—"Totally dissolved by water. Neither chloride of platina nor sulphate of magnesia, unless heated, throws down anything from this solution. By a strong fire it is converted into anhydrous carbonate of soda. If it contain any salt of potash, chloride of platina would precipitate, as already noticed, a double salt of potassium and platina. The aqueous solution acts but slightly on turmeric paper. If it do not contain the proper quantity of carbonic acid, it will precipitate sulphate of magnesia without the application of heat."

HYPOSULFITE DE SOUDE—*Hyposulphite of Soda, P.*—Take of crystallized carbonate of soda 320 parts; distilled water 640 parts; sublimed sulphur 40 parts. Dissolve the alkali, and mix with it the sulphur; pass into the solution a current of sulphurous acid gas in excess. Boil for a short time, and filter; and evaporate with a gentle heat to one third of its volume. Put it into a cool place, that the hyposulphite may crystallize.—*Paris Codex.*

Hyposulphite of soda is colourless, inodorous, and unaltered by the air.

LIQUOR SODÆ EFFERVESCENS—*Effervescing Solution of Soda, L.*—Take of sesquicarbonate of soda a drachm; distilled water a pint. Dissolve the carbonate of soda in the water; and pass into it, compressed by force, more carbonic acid than is sufficient for saturation. Keep the solution in a well-stopped vessel.—*London.*

Sodæ Aqua Effervescens—*Effervescing Solution of Soda, E.*—Take of bicarbonate of soda 1 drachm; water 1 pint. Dissolve the bicarbonate in the water, and saturate it with carbonic acid under strong pressure. Preserve the liquid in well-stopped vessels.—*Edinburgh.*

Aqua Carbonatis Sodæ Acidula—*Acidulous Solution of Carbonate of Soda, D.*—Take of carbonate of soda any quantity. Dissolve it in water, so that each pound by measure contain one drachm of soda; then, in a proper apparatus, pass through a stream of carbonic acid gas, extricated from white marble by means of muriatic acid diluted with six times its weight of water, until the carbonic acid is in excess in the fluid.—*Dublin.*

A solution which should be thus prepared is known by the name of soda-water.

The tests of the London College are:—"The blue colour of litmus first reddens in this solution; it returns when heated after the effervescence has ceased. The conversion of the blue colour of litmus to red, and its return after the application of heat, show that carbonic acid only has produced the effect."

Liquor Sodæ Chlorinatæ—*Solution of Chlorinated Soda, L.*—Take of carbonate of soda a pound; distilled water 48 fluid ounces; chloride of sodium 4 ounces; binoxide of manganese 3 ounces; sulphuric acid 4 ounces. Dissolve the carbonate of soda in two pints of the water; then put the chloride of sodium and binoxide of manganese, rubbed to powder, into a retort; and add to them the sulphuric acid, previously mixed with three fluid ounces of the water, and cooled. Heat the mixture, and pass the chlorine, first through five fluid ounces of the water, and afterwards into the solution of carbonate of soda above directed.—*London.*

Hypochlorite de Soude Liquide—*Solution of Hypochlorite of Soda, P.*—Take of dry chloride of lime 10 parts; crystal carbonate of soda 20 parts; water 450 parts. Mix the chloride of lime with two thirds of the water, and dissolve the carbonate of soda in the rest; mix the two solutions, and filter.—*Paris Codex.*

Chloride of soda, hypochlorite of soda, Labarraque's disinfecting liquor, is, in solution, colourless, with an odour of chlorine, and an astringent taste; it first reddens, and then bleaches, turmeric paper. It may be distinguished from the similar compound of lime by not yielding any precipitate with oxalate of ammonia. When exposed to the air it gradually evolves chlorine, and crystals of carbonate of soda are formed. It is supposed to be composed of 2 eqs. of bicarbonate of soda, one eq. of chloride of sodium, and one eq. hypochlorite of soda.

The tests of the London College are:—At first the colour of turmeric is allowed to brown in this solution; afterwards it is destroyed. When dilute hydrochloric acid is added, carbonic acid and chlorine are evolved together; solution of sulphate of indigo is decolourized by the latter; lime is precipitated from lime-water by the former. The alkaline effect upon turmeric paper is produced by the carbonate of soda, the ultimate bleaching effect by the chlorine. By the action of hydrochloric acid, and the expulsion of the carbonic acid and chlorine, a solution of chloride of sodium is obtained. The lime thrown down from the lime-water is in the state of carbonate." It is incompatible with the nitric, hydrochloric, sulphuric, and carbonic acids, and the alkaline carbonates.

Sodæ Murias Purum—*Purified Muriate of Soda, E.*—Take any convenient quantity of muriate of soda. Dissolve it in boiling water, filter the solution, and boil it down over the fire, skimming off the crystals which form; wash the crystals quickly with cold water, and dry them.—*Edinburgh.*

Chloride of sodium, in its pure state, presents the form of crystalline grains of a cubical form; and, by slow evaporation, it may be crystallized in regular cubes, which are transparent and colourless. It is permanent in the air, but becomes moist on the surface in a damp atmosphere. Its taste is purely saline. It is soluble in two parts and two thirds temperate water. Its solution is very little increased at 212°, indeed, not at all, as some think, if the salt be quite pure. It is composed of one eq. of sodium 24, and one eq. of chlorine 36.

Muriate of soda is subject to adulteration in this country with sulphates, nitrates, and muriates of lime and magnesia. The tests of the London College are—"Almost equally soluble in cold or hot water. It does not alter the colour of litmus or turmeric. Carbonate of soda or nitrate of barytes precipitates scarcely anything. If neither litmus nor turmeric be acted upon, there is neither acid nor alkali present. If carbonate of soda give no precipitate, earthy salts are absent; and if nitrate of barytes give none, no sulphate is mixed with the salt." The tests Ph. Ed. are—"A solution is not precipitated by solution of carbonate of ammonia, followed by solution of phosphate of soda; a solution of nine grains in distilled water is not entirely precipitated by a solution of twenty-nine grains of nitrate of silver."

Sodæ Phosphas—*Phosphate of Soda, E.*—Take of bones, burnt to whiteness, 10 pounds; sulphuric acid 2 pints and 4 fluid ounces; carbonate of soda a sufficiency. Pulverize the bones, and mix them with the acid; add gradually six pints of the water; digest for three days, replacing the water which evaporates; add six pints of boiling water, and strain through strong linen; pass more boiling water through the mass on the filter till it comes away nearly tasteless. Let the impurities subside in the united liquors, pour off the clear liquor, and concentrate to six pints. Let the impurities again settle, and to the clear liquor, which is to be poured off and heated to ebullition, add carbonate of soda, previously dissolved in boiling distilled water, until the acid is completely neutralized. Set the solution aside, to cool and crystallize. More crystals may be obtained by successively evaporating, adding a little carbonate of soda till the liquid exerts a feeble alkaline reaction on litmus paper, and then allowing it to cool. Preserve the crystals in well-closed vessels.—*Edinburgh.*

Sodæ Phosphas—*Phosphate of Soda, U.S.*—Take of bone, burnt to whiteness and powdered, 10 pounds; sulphuric acid 6 pounds; carbonate of soda a sufficient quantity. Mix the powdered bones with the sulphuric acid in an earthen vessel; then add a gallon of water, and stir them well together. Digest for three days, occasionally adding a little water to replace that which is lost by evaporation, and frequently stirring the mixture. At the expiration of this time, pour in a gallon of boiling water until the liquid passes nearly tasteless. Set by the strained liquor, that the dregs may subside, from which pour off the clear solution, and boil it down to a gallon. To this solution, poured off from the dregs and heated in an iron vessel, add by degrees the carbonate of soda previously dissolved in hot water, until effervescence ceases, and the phosphoric acid is completely neutralized. Then filter the liquor and set it aside to crystallize. Having removed the crystals, add, if necessary, a small quantity of carbonate of soda to the liquor, so as to render it slightly alkaline; then alternately evaporate and crystallize, so long as crystals are produced. Lastly, preserve the crystals in well-stopped bottles.—*United States.*

Phosphate de Soude Crystallisé—*Crystallized Phosphate of Soda, P.*—Take of biphosphate of lime 2,000 parts; carbonate of soda Q.S. Dissolve the carbonate of soda in water, and add the solution by degrees to the biphosphate of lime, until the liquor turns the syrup of violet, green; filter, and wash the deposit with water, which add to the other liquor; evaporate to the density of about 1,200, and set aside to crystallize. Evaporate the mother liquors afresh, taking care that they have an alkaline reaction. Purify the crystals by a second crystallization.—*Paris Codex.*

On the addition of carbonate of soda to the solution of superphosphate of lime, mutual decomposition ensues, carbonic acid escapes, the soda forms phosphate of soda with part of the phosphoric acid, and the rest of the acid falls down in the form of phosphate of lime. In order to obtain good crystals from the solution it is necessary that the carbonate of soda be in slight excess. In operations on the large scale, where it may be advisable to economize the phosphate of lime, the precipitate obtained on adding carbonate of soda is dissolved in nitric acid; sulphate of soda is then added, and the nitric acid is removed by distillation, upon which a solution of phosphate of soda is obtained, with a deposition of sulphate of lime.—Christison.

Phosphate of soda is in colourless, transparent crystals, which speedily effloresce when exposed to the air; it has a cooling, mildly saline taste. It is wholly soluble in water, and insoluble in alcohol. The solution has an alkaline reaction, and does not effervesce with acids. It yields with nitrate of silver a yellow and with chloride of barium a white precipitate, both soluble in nitric acid. It is composed of sixty-four parts of soda, seventy-two of phosphoric acid, and two hundred and sixteen of water.

The tests of the Edinburgh College are—"An efflorescent salt; forty-five grains dissolved in two fluid ounces of boiling distilled water, and precipitated by a solution of fifty grains of carbonate of lead in a fluid ounce of pyroligneous acid, will remain precipitable by solution of acetate of lead."

Sodæ Potassio-Tartras—*Potassio-Tartrate of Soda, L.*—Take of bitartrate of potash, powdered, 16 ounces; carbonate of soda 12 ounces; water, boiling, 4 pints. Dissolve the carbonate of soda in the boiling water, and add gradually the bitartrate of potash. Strain the liquor; then apply a gentle heat until a pellicle floats, and set it aside, that crystals may be formed. The liquor being poured off, dry them. Evaporate the liquor again, that it may yield crystals.—*London.*

Potassæ et Sodæ Tartras—*Tartrate of Potash and Soda, E.*—Take of bitartrate of potash 16 ounces; carbonate of soda 12 ounces; boiling water 4 pints. Proceed for this preparation as for the tartrate of potash.—*Edinburgh.*

Sodæ et Potassæ Tartras—*Tartrate of Soda and Potassa, D.*—Take of carbonate of soda 5 parts; bitartrate of potassa rubbed to a fine powder 7 parts; boiling water 50 parts. Dissolve the carbonate of soda in the water, and gradually add the bitartrate of potassa; filter the solution through paper, and set it aside, that, as it slowly cools, crystals may form.—*Dublin.*

Sodæ et Potassæ Tartras—*Tartrate of Potassa and Soda, U.S.*—Take of carbonate of soda a pound; bitartrate of potassa, in

powder, 16 ounces; boiling water 5 pints. Dissolve the carbonate of soda in the water, and gradually add the bitartrate of potassa. Filter the solution, and evaporate until a pellicle forms; then set it aside to crystallize. Pour off the liquor, and dry the crystals on bibulous paper. Lastly, again evaporate the liquor, that it may furnish more crystals.—*United States.*

Tartrate de Potasse et de Soude—*Tartrate of Potash and Soda, P.*—Take of bitartrate of potash 100 parts; water 500 parts; carbonate of soda Q. S. Boil the water in a silver or tinned copper vessel, and dissolve the cream of tartar; add the carbonate of soda, by degrees, stirring continually with a spatula, until it does not produce effervescence, and a slight excess remains. Filter, evaporate to the density of about 1,380, and set aside to crystallize.—*Paris Codex.*

In these processes the excess of tartaric acid in the bitartrate of potash is saturated by the soda of the carbonate, the carbonic acid of which is dissipated; and a triple salt is obtained by evaporation, instead of two distinct salts being formed from the different alkaline bases.

Tartrate of potash and soda is in beautiful, colourless, and transparent crystals; they are slightly efflorescent, and soluble in five parts of water at 60. It has a mild, saline, not disagreeable taste. It is composed of one eq. of tartrate of potash 114, one eq. of tartrate of soda 98, and eight eqs. of water 72.

It is but little subject to adulteration. The tests of the London College are—"Totally dissolved by water. Neither chloride of barium nor nitrate of silver throws down anything from the dilute solution. It does not alter the colour of litmus or tumeric. By sulphuric acid, when added, part of it is converted into bitartrate of potash: when neither litmus nor turmeric is altered in colour, the tartaric acid of the bitartrate of potash has been accurately saturated by soda. The non-precipitation by nitrate of silver and chloride of barium proves the absence of any chloride and sulphate. The sulphuric acid takes half the potash from the tartaric, and thus converts the remainder into bitartrate, which precipitates in minute crystals." The tests Ph. Ed. are—"Entirely and easily soluble in five parts of boiling water; muriatic acid occasions a crystalline precipitate in a strong solution; thirty-seven grains in solution are not entirely precipitated by forty-three grains of nitrate of lead."

It is incompatible with most acids and acidulous salts, except the bitartrate of potash. The acetate and diacetate of lead, and the salts of lime, are decomposed by this compound.

Sodæ Sulphas—*Sulphate of Soda, L.*—Take of the salt which remains after the distillation of hydrochloric acid 2 pounds; water, boiling, 2 pints; carbonate of soda as much as is necessary. Dissolve the salt in the water, then gradually add as much carbonate of soda as is sufficient to saturate the acid. Boil down until a pellicle appears, and, the solution being strained, set it aside, that crystals may be formed. The liquor being poured off, dry them.—*London.*

Sodæ Sulphas—*Sulphate of Soda, E.*—Take of the salt which remains after preparing pure muriatic acid 2 pounds; boiling water 3 pints; white marble in powder a sufficiency. Dissolve the salt in the water, add the marble so long as effervescence takes place, boil the liquid, and when neutral filter it; wash the insoluble matter with boiling water, adding the water to the original liquid; concentrate till a pellicle begins to form, and then let the liquid cool and crystallize.—*Edinburgh.*

Sodæ Sulphas—*Sulphate of Soda, D.*—Dissolve the salt which remains after the distillation of muriatic acid in a sufficient quantity of boiling water. Evaporate the filtered solution to a proper point, and set it apart, that, as it slowly cools, crystals may form.—*Dublin.*

Sulfate de Soude Purifié—*Purified Sulphate of Soda, P.*—Take of sulphate of soda of commerce. Dissolve the salt in water with the aid of heat; filter the solution, and allow it to crystallize by cooling; decant the mother liquor, and preserve the salt in well-stopped bottles.—*Paris Codex.*

Sulphate of soda is sold either in the form of small acicular crystals, or in large oblique rhombic prisms. It is colourless and transparent, of a cooling bitter taste. By exposure to the air it effloresces, and a white powder is left. It is extremely soluble in water, three parts of which, at 60, dissolve one part of the salt; boiling water dissolves its own weight. It is insoluble in alcohol. Heat fuses it in its water of crystallization, and when raised quickly drives off all the water except one equivalent, which is retained until the temperature reaches nearly that of redness. It is composed of one equivalent of sulphuric acid 40, and one equivalent of soda 32.

The tests of the London College are—"Exposed to the air, it falls to powder. Totally dissolved by water, very slightly by alcohol. It does not alter the colour of litmus or turmeric. Nitrate of silver throws down scarcely anything from a dilute solution; nitrate of barytes more, which is not dissolved by nitric acid. One hundred parts of this salt lose 55.5 parts by a strong heat. If neither litmus nor turmeric be acted upon by this salt, it is, as it should be, neutral; the precipitate obtained by nitrate of silver is a small portion of chloride, denoting the presence of chloride of sodium; the precipitate formed by nitrate of barytes is sulphate of barytes. The loss of 55.5 per cent. by strong heat is water."

Sulfure de Sodium Cristallisé—*Crystallized Sulphuret of Sodium, P.*—Take of caustic soda 100 parts. Dissolve in so much water to obtain a solution of the density of about 1,200. Pass through it sulphuretted hydrogen gas until it ceases to be absorbed. Preserve from contact with air, and allow it to deposit crystals of sulphuret of sodium, which dry, and preserve in well-stopped bottles.—*Paris Codex.*

Preparations of Tin.

Stanni Pulvis—*Powder of Tin, E.*—Melt tin in an iron vessel; pour it into an earthenware mortar heated a little above the melting point of the metal; triturate briskly as the metal cools, ceasing as soon as a considerable portion is pulverized; sift the product, and repeat the process with what remains in the sieve.—*Edinburgh.*

Stanni Pulvis—*Powder of Tin, D.*—Take of tin any quantity. Melt it over the fire in an iron mortar, and stir it, while it is cooling, until it become a powder, which, when cold, is to be passed through a sieve.—*Dublin.*

Poudre d'Etain—*Powder of Tin, P.*—Take of pure tin any quantity. Melt it over the fire in an iron vessel; triturate it in a heated mortar until the metal cools; sift the product through a fine sieve, and repeat the process with what remains.—*Paris Codex.*

It is a greyish powder, entirely soluble in muriatic acid.

Persulfure d'Etain—*Persulphuret of Tin, P.*—Take of pure tin 120 parts; mercury 60 parts; sublimed sulphur 70 parts; hydrochlorate of ammonia 60 parts. Fuse the tin in an earthen crucible with the gentlest possible heat; add to it the mercury to obtain an amalgum, and triturate the two with the sulphur and ammonia. Introduce the mixture into a glass matras, placed in a sandbath. Heat gradually until white and sulphuretted hydrogen vapours cease to be given off. Allow it to cool; break the matras; the upper part of the residue consists of a layer of small brilliant yellow scales, constituting the or mussif, composed of 64.63 of tin, and 35.37 of sulphur.—*Paris Codex.*

Preparations of Zinc.

Zinci Acetas—*Acetate of Zinc, U.S.*—Take of acetate of lead a pound; zinc, granulated, 9 ounces; distilled water 3 pints. Dissolve the acetate of lead in the water and filter. Add the zinc to the solution, and agitate them occasionally together, in a stopped bottle, for five or six hours, or until the liquid yields no precipitate with a solution of iodide of potassium. Filter the liquor, evaporate it with a moderate heat to one fifth, and set it aside to crystallize. Pour off the liquid, and dry the crystals on bibulous paper. Should the crystals be coloured, dissolve them in distilled water, and, having heated the solution, drop into it, while hot, a filtered solution of chlorinated lime until it ceases to let fall sesquioxide of iron; then filter the liquor, acidulate it with a few drops of acetic acid, evaporate, and crystallize.—*United States.*

Acetate of zinc is in white micaceous crystals, which effloresce in a dry atmosphere, and are very soluble in water. The solution yields a white precipitate with ferrocyanuret of potassium and hydrosulphate of ammonia. The salt is decomposed by sulphuric acid and by a strong heat, with the escape of acetous vapours.—United States.

Tinctura Acetatis Zinci—*Tincture of Acetate of Zinc, D.*—Take of sulphate of zinc, acetate of potassa, of each, 1 part. Rub them together, and add of rectified spirit of wine sixteen parts. Macerate for a week, with occasional agitation, and filter through paper.—*Dublin.*

Calamina Præparata—*Prepared Calamine, P.*—Burn the calamine, then bruise it. Afterwards let it be made into a very fine powder in the same manner as we have directed chalk to be prepared.—*London.*

Zinci Carbonas Impurum Præparatum—*Prepared Impure Carbonate of Zinc, D.*—Reduce calcined calamine stone to powder, and separate the very fine parts in the manner directed for the preparation of chalk.—*Dublin.*

Zinci Carbonas Preparatus—*Prepared Carbonate of Zinc, U.S.*—Take of carbonate of zinc any convenient quantity. Heat it to redness, and afterwards pulverize it; then reduce it to a very fine powder in the manner directed for prepared chalk.—*United States.*

Calamine is a native carbonate of zinc which occurs plentifully in some parts of England; it is usually, however, impure, being mixed with sesquioxide of iron and earthy matter. It is sometimes externally applied in excoriations, and is the basis of the ceratum calaminæ.

Zinci Chloridum—*Chloride of Zinc, U.S.*—Take of zinc, in small pieces, 2½ ounces; nitric acid, prepared chalk, each, a drachm; muriatic acid a sufficient quantity. To the zinc, in a glass or porcelain vessel, add gradually sufficient muriatic acid to dissolve it; then strain, add the nitric acid, and evaporate to dryness. Dissolve the dry mass in water, add the chalk, and, having allowed the mixture to stand for twenty-four hours, filter, and again evaporate to dryness.—*United States.*

Chloride of zinc is a whitish-grey semitransparent mass, deli-

quescent, and wholly soluble in water, alcohol, and ether. When exposed to heat, it first melts and then sublimes. The solution yields with nitrate of silver a white precipitate insoluble in nitric acid. It unites with both albumen and gelatine to form, difficultly, soluble compounds, and hence it occasions precipitates with liquids containing these principles in solution. It gives also white precipitates with ferrocyanuret of potassium and hydrosulphate of ammonia.

ZINCI OXYDUM—*Oxide of Zinc, L.*—Take of sulphate of zinc a pound; sesquicarbonate of ammonia 6½ ounces; distilled water 3 gallons. Dissolve the sulphate of zinc and sesquicarbonate of ammonia, separately, in twelve pints of the distilled water, and strain; then mix; wash what is precipitated frequently with water; and, lastly, burn it for two hours in a strong fire.—*London.*

ZINCI OXYDUM—*Oxide of Zinc, E.*—Take of sulphate of zinc 12 ounces; carbonate of ammonia 6 ounces. Dissolve each in two pints of water; mix the solutions; collect the precipitate on a filter of linen or calico; wash it thoroughly; squeeze and dry it, and expose it for two days to a red heat.—*Edinburgh.*

ZINCI OXYDUM—*Oxide of Zinc, D.*—Take of zinc, broken into small pieces, any quantity. Throw these at intervals into a sufficiently large crucible, heated to whiteness, and placed with its mouth inclined towards the mouth of the furnace. After each piece of zinc is thrown in, invert over the crucible another crucible, but loosely, so as not to exclude the air. Preserve the light, very white, sublimed powder for use.—*Dublin.*

ZINCI OXYDUM—*Oxide of Zinc, U.S.*—Take of sulphate of zinc a pound; carbonate of ammonia 6½ ounces; distilled water 3 gallons. Dissolve the sulphate of zinc and carbonate of ammonia, separately, in twelve pints of the distilled water, strain the solutions, and mix them. Wash the precipitate frequently with water, and expose it to a strong heat, so as to drive off the carbonic acid.—*United States.*

Oxide of zinc may be prepared of various degrees of purity by a variety of processes. One method, the original process of modern chemistry, and which is still retained by the Dublin College, consists in oxidating the metal by combustion in atmospheric air. The fused metal takes fire about the temperature of 940°, and burns with an intense white flame; and a white powder is produced, which partly remains in the crucible and partly rises in the air in fine fleecy particles, formerly known by the name of philosopher's wool. For the successful management of this process it is not necessary to project the metal in successive small portions into the crucible, as directed by the Dublin College. In order to free the oxide from adhering metal, it should be agitated in water, and subsequently dried. When thus prepared, the oxide of zinc always contains more or less of the impurities which existed in the metal, but is, nevertheless, probably fit enough for every medicinal purpose. It may, however, be obtained at once more pure and more conveniently in the moist way, by decomposing sulphate of zinc with an alkali or alkaline carbonate; and this method has, accordingly, been preferred by the Colleges of London and Edinburgh. The oxide may be thus obtained by caustic alkalis; for example, by ammonia. Ammonia, however, when in excess, redissolves some of the oxide; and the other caustic alkalis have the same effect. It has, therefore, been thought preferable to precipitate the oxide in the form of carbonate, and to expel the carbonic acid subsequently by heat; and the ammoniacal carbonate is preferred, because any adhering alkalis are removed in the last stage of the process.—CHRISTISON.

Oxide of zinc is of a yellowish-white colour, inodorous, insipid, and infusible in the fire; insoluble in water and alcohol, entirely soluble in acids and in the alkalis. It consists, according to Proust, of one eq. of zinc 32, and one eq. of oxygen 8.

Its adulterations are chiefly with sulphate of zinc, carbonate of lime, and oxide of iron. The tests of the Edinburgh College are—"White; tasteless; entirely soluble in diluted nitric acid without effervescence; this solution is not affected by nitrate of baryta, but gives with ammonia a white precipitate entirely soluble in an excess of the test."

ZINCI SULPHAS—*Sulphate of Zinc, L.*—Take of zinc, in small pieces, 5 ounces; diluted sulphuric acid 2 pints. Pour gradually the diluted sulphuric acid upon the pieces of zinc, and the effervescence being finished, strain the liquor; then boil it down until a pellicle begins to form; lastly, set it aside, that crystals may be formed.—*London.*

ZINCI SULPHAS—*Sulphate of Zinc, E.*—This salt may be prepared either by dissolving fragments of zinc in diluted sulphuric acid till a neutral liquid be obtained, filtering the solution, and concentrating sufficiently for it to crystallize on cooling; or by repeatedly dissolving the impure sulphate of zinc of commerce until the product, when dissolved in water, does not yield a black precipitate with tincture of galls, and corresponds with the characters laid down for sulphate of zinc in the list of the Materia Medica.—*Edinburgh.*

ZINCI SULPHAS—*Sulphate of Zinc, D.*—Take of zinc, reduced to small pieces, 13 parts; sulphuric acid 20 parts; water 120 parts. Pour the acid, previously diluted with the water, upon the zinc; put into a glass vessel; digest for a short time after the effervescence ceases; then evaporate the strained solution to a proper point, and set aside to crystallize.—*Dublin.*

ZINCI SULPHAS—*Sulphate of Zinc, U.S.*—Take of zinc, in small pieces, 4 ounces; sulphuric acid 6 ounces; distilled water 4 pints. To the zinc and water, previously introduced into a glass vessel, add, by degrees, the sulphuric acid, and, when the effervescence shall have ceased, filter the solution through paper; then boil it down till a pellicle begins to form, and set it aside to crystallize.—*United States.*

Sulphate of zinc crystallizes in right rhombic prisms; it is inodorous, colourless, and has a slightly acidulous styptic, metallic taste; it is not altered by exposure to the air; it is soluble in two and a half times its weight of water at 60°, and much more so in boiling water. It is insoluble in alcohol. It is composed of one eq. of sulphuric acid 40, one eq. of oxide of zinc 40, and seven eqs. of water 63.

The tests of the London College are—"Totally dissolved by water. What is thrown down by ammonia is white, and, when the ammonia is added in excess, it is again dissolved. On the addition of chloride of barium or acetate of lead they are decomposed. If the sulphate of zinc contain oxide of iron it will be precipitated by the ammonia, but not redissolved by excess of it. If it contain copper, the solution will be rendered blue by ammonia. Chloride of barium gives a precipitate of sulphate of barytes, and acetate of lead one of sulphate of lead, both insoluble in dilute nitric acid.

It is incompatible with alkalis and their carbonates, earths and hydrosulphurets, lime-water, and astringent vegetable infusions.

MIXTURES.

MISTURA ACACIÆ—*Mixture of Acacia, L.*—Take of acacia, powdered, 10 ounces; water, boiling, a pint. Rub the acacia with the water gradually poured in, and dissolve it.—*London.*

MUCILAGO—*Mucilage, E.*—Take of gum arabic 9 ounces; water, cold, 1 pint. Mix them, allow the gum to dissolve without applying heat, but with occasional stirring; then strain through linen or calico. —*Edinburgh.*

MISTURA ACACIÆ—*Mixture of Acacia, E.*—Take of mucilage 3 fluid ounces; sweet almonds 1 ounce and 2 drachms; pure sugar 5 drachms; water 2 pints. Steep the almonds in hot water, and peel them; beat them to a smooth pulp in an earthenware or marble mortar, first with the sugar, and then with the mucilage; add the water gradually, stirring constantly; then strain through linen or calico.—*Edinburgh.*

MUCILAGO GUMMI ARABICI—*Mucilage of Gum Arabic, D.*—Take of gum arabic, in coarse powder, 4 ounces; boiling water 8 ounces. Digest with frequent agitation until the gum be dissolved; then strain the mucilage through linen.—*Dublin.*

MUCILAGO ACACIÆ—*Mucilage of Gum Arabic, U.S.*—Take of gum arabic, in powder, 4 ounces; boiling water half a pint. Add the water gradually to the gum, rubbing them together till the mucilage is formed. —*United States.*

MUCILAGE DE GOMME ARABIQUE—*Mucilage of Gum Arabic, P.* —Take of gum arabic, powdered, 32 parts; cold water 32 parts. Add the water gradually to the gum, and rub in a mortar until dissolved.—*Paris Codex.*

The straining through linen is an advantage, as the gum is often mixed with small pieces of wood and other impurities. The mucilage thus obtained is viscid, thick, and adhesive, semi-pellucid, and nearly colourless, if the gum be good. It has a faint, peculiar odour, is insipid, and may be kept without altering for a considerable time; but at length it becomes sour, and acetic acid is formed. The strong acids act on it as they do on gum; but when diluted they do not alter mucilage. Alcohol converts it into a white curd, but proof spirit produces scarcely any alteration; no change is produced by spirit of nitric ether, but sulphuric ether and compound spirit of ether precipitate a thick, white, tenacious curd. Tincture of sesquichloride of iron, even when diluted, converts mucilage into a brownish, or even orange-coloured, insoluble jelly; and diacetate of lead gives a copious, dense, flaky precipitate, which is a compound of gum and oxide of lead; while no change is produced by the solution of the following metallic substances:—Acetate of lead, green sulphate of iron, sulphate of zinc, bichloride of mercury, and tartarized antimony; nor by the alkalis, or the neutral salts.—THOMSON.

MISTURA AMMONIACI—*Mixture of Ammoniacum, L.*—Take of ammoniacum 5 drachms; water a pint. Rub the ammoniacum with the water, gradually poured in, until they are perfectly mixed.—*London.*

MISTURA AMMONIACI—*Mixture of Ammoniacum, D.*—Take of gum ammoniacum a drachm; pennyroyal water 8 fluid ounces. Triturate the gum, gradually adding the pennyroyal water, until the mixture acquire the appearance of milk, which is to be strained through linen. —*Dublin.*

MISTURA AMMONIACI—*Mixture of Ammoniacum, U.S.*—Take of ammoniacum 2 drachms; water half a pint. Rub the ammoniac with the water until they are thoroughly mixed.—*United States.*

The resinous part of the ammoniacum is suspended in the water by means of the gummy part; but after a little time the greater portion of the resin subsides. It is coagulated by distilled vinegar, the oxymels, ether, spirit of nitric ether, bitartrate of potassa, and bichloride of mercury.

MISTURA AMYGDALÆ—*Mixture of Almond, L.*—Take of confection of almond 2½ ounces; distilled water a pint. Add the water to the confection of almond gradually, while rubbing them, until they are mixed; afterwards strain through linen.—*London.*

MISTURA AMYGDALARUM—*Mixture of Almonds, E.*—Take of the conserve of almonds 2 ounces; water 2 pints. Add the water gradually to the confection, triturating constantly; and then strain through linen and calico. Or,

Take of sweet almonds 1 ounce and 2 drachms; pure sugar 5 drachms; mucilage half a fluid ounce; water 2 pints. Steep the almonds in hot water, and peel them; and proceed as for the mistura acaciæ.—*Edinburgh.*

MISTURA AMYGDALARUM—*Mixture of Almonds, D.*—Take of sweet almonds, blanched, an ounce and a half; purified sugar half an ounce; water 2½ pints. Rub the almonds with the sugar, adding the water gradually; then strain.—*Dublin.*

MISTURA AMYGDALÆ—*Almond Mixture, U.S.*—Take of sweet almonds half an ounce; gum arabic, in powder, half a drachm; sugar 2 drachms; distilled water 8 fluid ounces. Macerate the almonds in water, and, having removed their external coat, beat them with the gum arabic and sugar, in a marble mortar, till they are thoroughly mixed; then rub the mixture with distilled water, gradually added, and strain.—*United States.*

"In these preparations the oil of almonds is simply diffused through the water, and suspended in it by the mucilage and fecula which the almonds contain, and by the gum. The mixture is inodorous, bland, and milky; the oil, after some time, rises like a thick cream to the surface; and in forty-eight hours the acetous fermentation commences and the mixture turns sour. It is decomposed by acids, oxymel of squils, spirits, and tinctures (unless these be in small quantities), tartrate and bitartrate of potassa, bisulphate of potassa, nitrate of potassa, acetate and diacetate of lead, and spirit of nitric ether."

MISTURA ALTHÆÆ—*Mixture of Marshmallow, E.*—Take of althæa-root, dried, 4 ounces; raisins, freed of the seeds, 2 ounces; boiling water 5 pints. Boil down to three pints; strain through linen or calico, and, when the sediment has subsided, pour off the clear liquor for use.—*Edinburgh.*

MISTURA ASAFŒTIDÆ—*Mixture of Asafœtida, L.*—Take of asafœtida 5 drachms; water a pint. Rub the asafœtida with the water, gradually poured in, until they are perfectly mixed.—*London.*

MISTURA ASAFŒTIDÆ—*Mixture of Asafœtida, D.*—Take of asafœtida a drachm; pennyroyal water 8 fluid ounces. Triturate the asafœtida, gradually adding the water, until it form an emulsion.—*Dublin.*

MISTURA ASAFŒTIDÆ—*Mixture of Asafœtida, U.S.*—Take of asafœtida 2 drachms; water half a pint. Rub the asafœtida with the water, gradually added, until they are thoroughly mixed.—*United States.*

MISTURA CAMPHORÆ—*Mixture of Camphor, L.*—Take of camphor half a drachm; rectified spirits 10 minims; water a pint. First rub the camphor with the spirit, then with the water, gradually poured in, and strain through linen.—*London.*

MISTURA CAMPHORÆ—*Mixture of Camphor, E.*—Take of camphor 1 scruple; sweet almonds, and pure sugar, of each, half an ounce; water 1 pint. Steep the almonds in hot water and peel them; rub the camphor and sugar well together in a mortar; add the almonds; beat the whole into a smooth pulp; add the water gradually, with constant stirring, and then strain.—*Edinburgh.*

MISTURA CAMPHORÆ CUM MAGNESIA—*Mixture of Camphor with Magnesia, E.*—Take of camphor 10 grains; carbonate of magnesia 25 grains; water 6 fluid ounces. Triturate the camphor and carbonate of magnesia together, adding the water gradually.—*Edinburgh.*

MISTURA CAMPHORÆ—*Mixture of Camphor, D.*—Take of camphor a scruple; rectified spirit of wine 10 drops; refined sugar half an ounce; water a pint. Rub the camphor first with the spirit and then with the sugar; add the water during the trituration, and strain the mixture through linen.—*Dublin.*

MISTURA CAMPHORÆ CUM MAGNESIA—*Mixture of Camphor with Magnesia, D.*—Take of camphor 12 grains; carbonate of magnesia half a drachm; water 6 ounces. Rub the camphor with the magnesia; add the water gradually, and mix.—*Dublin.*

A pint of water takes up less than one half the quantity of camphor ordered by the London College; but the camphor communicates both odour and taste to the water in a considerable degree: it is rendered more soluble by the magnesia. Solution of pure potassa separates the camphor.—THOMSON.

MISTURA CASCARILLÆ COMPOSITA—*Compound Mixture of Cascarilla, L.*—Take of infusion of cascarilla 17 fluid ounces; vinegar of squill a fluid ounce; compound tincture of camphor 2 fluid ounces. Mix.—*London.*

MISTURA CRETÆ—*Mixture of Chalk, L.*—Take of prepared chalk half an ounce; sugar 3 drachms; mixture of acacia a fluid ounce and a half; common water 18 fluid ounces. Mix.—*London.*

MISTURA CRETÆ—*Mixture of Chalk, E.*—Take of prepared chalk 10 drachms; pure sugar 5 drachms; mucilage 3 fluid ounces; spirit of cinnamon 2 ounces; water 2 pints. Triturate the chalk, sugar, and mucilage together; and then add gradually the water and spirit of cinnamon.—*Edinburgh.*

MISTURA CRETÆ—*Mixture of Chalk, D.*—Take of prepared chalk half an ounce; refined sugar 3 drachms; acacia powder an ounce; cinnamon-water a pint. Mix.—*Dublin.*

MISTURA CRETÆ—*Mixture of Chalk, U.S.*—Take of prepared chalk half an ounce; sugar, gum arabic in powder, each, 2 drachms; cinnamon-water, water, each, 4 fluid ounces. Rub them together till they are thoroughly mixed.—*United States.*

This mixture is incompatible with every acid and acidulous salt.

MISTURA CREASOTI—*Mixture of Creasote, E.*—Take of creasote, and acetic acid, of each, 16 minims; compound spirit of juniper and syrup, of each, 1 fluid ounce; water 14 fluid ounces. Mix the creasote with the acid, then gradually the water, and lastly the syrup and spirit.—*Edinburgh.*

MISTURA FERRI COMPOSITA—*Compound Mixture of Iron, L. and D.*—Take of myrrh, powdered, 2 drachms; carbonate of potash a drachm; rose-water 18 fluid ounces; sulphate of iron, powdered, 2½ scruples; spirit of nutmeg a fluid ounce; sugar 2 drachms. Rub together the myrrh with the spirit of nutmeg and the carbonate of potash, and to these, while rubbing, add first the rose-water with the sugar, then the sulphate of iron. Put the mixture immediately into a proper glass vessel, and stop it.—*London and Dublin.*

MISTURA FERRI COMPOSITA—*Compound Mixture of Iron, E.*—Take of myrrh, bruised, 2 drachms; carbonate of potash 1 drachm; rose-water 18 fluid ounces; sulphate of iron, in coarse powder, 2½ scruples; spirit of nutmeg 1 fluid ounce; pure sugar 2 drachms. Triturate the myrrh with the spirit of nutmeg and carbonate of potash, add the rose-water and sugar, with constant trituration, and then the sulphate of iron. Preserve the mixture in well-closed bottles.—*Edinburgh.*

MISTURA FERRI COMPOSITA—*Compound Mixture of Iron, U.S.*—Take of myrrh a drachm; carbonate of potash 25 grains; rose-water 17½ fluid ounces; sulphate of iron, in powder, a scruple; spirit of lavender half a fluid ounce; sugar a drachm. Rub the myrrh with the rose-water gradually added; then mix with these the spirit of lavender, sugar, and carbonate of potassa; and, lastly, the sulphate of iron. Pour the mixture immediately into a glass bottle, which is to be well stopped.—*United States.*

In this mixture the sulphate of iron is decomposed by the carbonate of potassa, forming, by the change of constituents which takes place, sulphate of potassa and sesquioxide of iron mixed with a protocarbonate; the former of which is dissolved, while the latter is diffused through the mixture, and kept suspended by the myrrh, which forms a saponaceo-mucilaginous compound with the excess of alkali. The iron which is in the state of protocarbonate rapidly attracts oxygen while the vessel is open, and loses its carbonic acid, being wholly converted into the sesquioxide, which is insoluble, and, consequently, it is necessary to keep the mixture well excluded from the air.—THOMSON.

"Mistura ferri composita should not be made long before it is wanted for use; for not only is its efficacy diminished by keeping, but, from the different appearances it presents where recently prepared, to those it exhibits when kept long, the patient would naturally suppose that some mistake had occurred in preparing it."

"It is incompatible with acids and acidulous salts, and vegetable astringents."

MISTURA FERRI AROMATICA—*Aromatic Mixture of Iron, D.*—Take of the bark of cinchona lancifolia, reduced to a coarse powder, 1 ounce; bruised calumba root, 3 drachms; bruised cloves 2 drachms; iron filings half an ounce. Digest in a close vessel for three days, agitating frequently with as much peppermint-water as will yield twelve ounces of strained fluid; then add of compound tincture of cardamoms 3 ounces; and tincture of orange peel 3 drachms.—*Dublin.*

MISTURA GENTIANÆ COMPOSITA—*Compound Mixture of Gentian, L.*—Take of compound infusion of gentian 12 fluid ounces; compound infusion of senna 6 fluid ounces; compound tincture of cardamoms 2 fluid ounces. Mix.—*London.*

MISTURA GUAIACI—*Mixture of Guaiacum, L.*—Take of guaiacum resin 3 drachms; sugar half an ounce; mixture of acacia half a fluid ounce; cinnamon-water 19 fluid ounces. Rub the guaiacum with the sugar, then with the mixture of acacia, and to these, while rubbing, add

gradually to the other ingredients the cinnamon-water. — *London.*

Mistura Guaiaci—*Mixture of Guaiacum, E.*—Take of guaiac 3 drachms; sugar half an ounce; mucilage half a fluid ounce; cinnamon-water 19½ fluid ounces. Triturate the guaiac with the sugar, then with the mucilage, and then add gradually the cinnamon-water with constant trituration.—*Edinburgh.*

Mistura Hordei—*Mixture of Barley, E.*—Take of pearl barley, figs, sliced, raisins, freed of the seeds, of each, 2½ ounces; liquorice-root, sliced and bruised, 5 drachms; water 5½ pints. Clean the barley, if necessary, by washing it with cold water; boil it with 4½ pints of the water down to two pints; add the figs, raisins, and liquorice-root, with the remaining pint of water, and again boil down to two pints, then strain.—*Edinburgh.*

Mistura Moschi—*Mixture of Musk, L.*—Take of musk, acacia, powdered, sugar, each, 3 drachms; rose-water a pint. Rub the musk with the sugar, then with the acacia, the rose-water being gradually poured in.—*London.*

Mistura Spiritus Vini Gallici—*Mixture of Spirit of French Wine, L.*—Take of spirit of French wine (brandy), cinnamon-water, each, 4 fluid ounces; the yelks of 2 eggs; purified sugar half an ounce; oil of cinnamon 2 minims. Mix.—*London.*

Mistura Scammonii—*Mixture of Scammony, E.*—Take of resin of scammony 7 grains; unskimmed milk 3 fluid ounces. Triturate the resin with a little of the milk, and gradually with the rest of it till a uniform emulsion is formed.—*Edinburgh.*

Mucilago Amyli—*Mucilage of Starch, E.*—Take of starch half an ounce; water 1 pint. Triturate the starch with a little of the water; add the rest of the water gradually; then boil for a few minutes.—*Edinburgh.*

Mucilago Amyli—*Mucilage of Starch, D.*—Take of starch 3 drachms; water a pint. Rub the starch, gradually adding the water to it; then boil till a mucilage be produced.—*Dublin.*

Mucilage de Lin—*Mucilage of Linseed, P.*—Take of linseeds 32 parts; boiling water 192 parts. Digest during six hours, agitating occasionally; strain with slight pressure.—*Paris Codex.*

Mucilago Tragacanthæ—*Mucilage of Tragacanth, E.*—Take of tragacanth 2 drachms; boiling water 9 fluid ounces. Macerate for twenty-four hours; then triturate to dissolve the gum, and express through linen or calico.—*Edinburgh.*

Mucilago Gummi Tragacanthæ—*Mucilage of Gum Tragacanth, D.*—Take of gum tragacanth, in powder, 2 drachms; water 8 fluid ounces. Macerate in a covered vessel till the gum be dissolved, then strain the mucilage through linen.—*Dublin.*

Mucilago Tragacanthæ—*Mucilage of Tragacanth, U.S.*—Take of tragacanth 1 ounce; boiling water a pint. Macerate the tragacanth in the water for twenty-four hours; then triturate it so as to render the mucilage uniform, and strain forcibly through linen.—*United States.*

Mucilage de Gomme Adraganthe—*Mucilage of Gum Tragacanth, P.*—Take of gum tragacanth 32 parts; hot water 250 parts. Separate the dirt from the gum with a knife, and digest for twenty-four hours with a gentle heat; strain with strong pressure, and triturate in a mortar, to render the mucilage homogeneous.—*Paris Codex.*

Distilled or Volatile Oils.

Distilled or volatile oils are obtained chiefly from the flowers, leaves, fruits, barks, and roots of plants, by distilling them with water, in which they have been allowed to macerate for some time. Flowers, fruits, and leaves generally yield the finest oils and in greatest quantity when they are used fresh.

Substances yielding volatile oils must be distilled with water, the proper proportion of which varies for each article, and for the several qualities of each. In all instances there must be sufficient to prevent any of the material from being empyreumatized before the whole of the oil is carried over. In operations where the material is of pulpy consistence, other contrivances must be resorted to for the same purpose. These chiefly consist of particular modes of applying heat, so as to maintain a regulated temperature not much above 212°.

Although all volatile oils agree in their chemical properties sufficiently to constitute them members of the same class, yet they differ greatly in their qualities from each other, and in the proportion in which they are obtained. They mostly have a penetrating odour and hot taste, and are completely evaporated when heated in the open air, a property which is taken advantage of as a test of their purity; for, if they be adulterated with fixed oil, by heating a small portion of the suspected oil on a piece of clean paper a greasy spot will remain, whereas, if the volatile oil be pure, the paper will be left quite clean. Where a cheaper volatile oil has been employed to adulterate a more costly one, the detection can scarcely be made by any other means than by the difference of odour. If spirit of wine be mixed with the oil, then, when it is dropped upon water, a milky fluid is formed, instead of there remaining a transparent film of oil on the surface of the water. In a higher temperature essential oils are readily ignited and burn with a bright white flame, emitting a large quantity of dense black smoke, and with the production of a large proportion of carbonic acid and water. When exposed to the light they are deepened in colour or become colourless; when exposed to the air they become viscid, less odorous, redden litmus, and gradually assume the form of resins. These oils are very sparingly soluble in water, rendering it milky when agitated with it; they communicate to it their odour; they are soluble in alcohol, ether, and the fixed oils in various proportions. They unite with sulphur in a temperature sufficient to melt the sulphur, and form brown-coloured, fœtid mixtures, which have been denominated balsams of sulphur. The alkalis and earths combine imperfectly with them, and constitute a class of bodies which the French chemists have denominated savonules. The action of the acids is more violent on them than on the fixed oils; and several of them detonate when rubbed with chlorate of potash. The London College gives the following general rules for the distillation of volatile oils:—

The fruit of the anise, caraway, and juniper; the flowers of chamomile, lavender, and elder; the berries of pimenta, the tops of rosemary, and the entire and fresh herbs of the rest should be employed.

Put any of these into an alembic, and add as much water as is sufficient to cover it; then let the oil distil into a large cold vessel.

Oleum Anisi—*Oil of Anise.—London, Edinburgh, Dublin, and United States.*

Huile d'Anis—*Oil of Anise.—Paris Codex.*

One hundred pounds of anise-seed yield about two and a half pounds of oil, but the produce varies. It is of a whitish or pale straw colour, crystallizes at 50° in flat tables. The greater part of the oil consumed in this country is prepared in Spain. The specific gravity of that made in England is .9768; of that imported, or the foreign, .9903. It is sometimes adulterated with wax, spermaceti, or camphor; but the fraud is easily detected, for on warming moderately the genuine oil the crystals dissolve, which is not the case with the sophisticated.—Thomson.

Oleum Anthemidis—*Oil of Chamomile.—London and Edinburgh.*

Huile de Fleurs de Camomille—*Oil of Chamomile Flowers.—Paris Codex.*

The odour of this oil is not very pleasant, and the taste pungent. When recently distilled the colour is blue; but by exposure to light it changes to yellow. One hundred pounds of chamomile flowers yield about two pounds twelve ounces of oil. The specific gravity of the English oil from the flowers only is .9083, of the foreign it is .9239.

Huile d'Absinthe—*Oil of Wormwood.—Paris Codex.*

Huile d'Ecorce de Bergamot—*Oil of Bergamot.—Paris Codex.*

Obtained either by expression or distillation from the rind of the citrus bergamia. It is of a pale greenish yellow, very fragrant, and has a specific gravity of .885.

Huile de Basilic—*Oil of Sweet Basil.—Paris Codex.*

Oleum Carui—*Oil of Caraway.—London, Edinburgh, Dublin, and United States.*

Six pounds of caraway-seeds yield four ounces and a half of oil, which has an aromatic odour, and a sweetish pungent taste; is viscid and of a yellow colour. Its specific gravity is 946.

Huile d'Ecorce de Cédrat—*Oil of Cedrat.—Paris Codex.*

Huile d'Ecorce de Citrons—*Oil of Lemons.—Paris Codex.*

This oil is obtained both by expression and distillation. When quite pure it is colourless, fragrant, and limpid, and has a specific gravity of .847 at 70° F. It is soluble in all proportions in absolute alcohol; but spirit of wine, of the specific gravity of .847, dissolves only fourteen per cent. of it at 60°.

Oleum Chenopodii—*Oil of Wormseed—United States.*

Prepared by distilling wormseed with water.

Oleum Copaiba—*Oil of Copaiva, E.*—Take of copaiva 1 ounce; water 1 pint and a half. Distil, preserve the water; when most of the water has passed over, heat it, return it into the still, and resume the distillation; repeat this process so long as a sensible quantity of oil passes over with the water.—*Edinburgh.*

From 250 pounds of balsam, 128 pounds of volatile oil and 120 pounds of resin are obtained; when rectified and free from water it has the sp. gr. of 0.878. It is colourless, but possesses an acrid taste, and an aromatic, peculiar odour.

Oleum Fœniculi—*Oil of Fennel.—Edinburgh.*

Oleum Senimum Fœniculi Dulcis—*Oil of Fennel Seeds.—Dublin.*

Oleum Fœniculi—*Oil of Fennel.—United States.*

Huile de Fenouil—*Oil of Fennel.—Paris Codex.*

Obtained by distilling the bruised seeds of the fœniculum officinale with water. Twenty-five pounds of seed yield thirty ounces of oil (Thomson). Nineteen hundred weights of the fruit (shorts) yield

seventy-three pounds of oil (PEREIRA). It is colourless, has the odour of the plant, and a hot, sweetish taste; it congeals at 50°. Its sp. gr. is .997.

OLEUM GAULTHERIÆ—*Oil of Partridge Berry.—United States.*

This oil is used in the United States, and is prepared chiefly in New Jersey. It is directed to be distilled from the leaves, but the whole plant is generally used. When fresh it is nearly colourless, but as found in the shops it is of a brownish yellow or reddish colour. It has a sweetish, slightly pungent, peculiar taste, and a very agreeable characteristic odour, by which it may be distinguished from all other officinal oils. It is the heaviest of all known essential oils, having a sp. gr. of 1.173. Its boiling point is 412°.

OLEUM JUNIPERI—*Oil of Juniper.—London, Edinburgh, and United States.*

OLEUM BACCARUM JUNIPERI—*Oil of Juniper.—Dublin.*

HUILE DES FRUITS DE GENÉVRIER—*Oil of Juniper.—Paris Codex.*

Obtained by distilling the bruised fruit, tops, or wood of juniperus communis with water. The full-grown fruit yields more than the ripe fruit, for, in the act of ripening, a portion of the oil becomes converted into resin. The oil has a greenish-yellow colour, is viscid, and deposits a feculent matter when kept long. It has the well-known taste and smell of the juniper berries. Its sp. gr. is .911. When genuine it is soluble in alcohol.

OLEUM LAVANDULÆ—*Oil of Lavender.—London, Edinburgh, and United States.*

OLEUM FLORUM LAVANDULÆ—*Oil of Lavender.—Dublin.*

Obtained by distilling lavender flowers with water. About one pound nine ounces of oil is obtained from eighty pounds of lavender flowers; it has a pale yellow colour, a hot taste, and a very fragrant odour. Its sp. gr. varies from .905 to .877. When the stalks and leaves are distilled with the flowers, the quality of the oil is much deteriorated.

HUILE DE LAURIER CERISE—*Oil of Cherry Laurel.—Paris Codex.*

Obtained by distilling the leaves of cherry laurel. It is pale, heavier than water, and contains hydrocyanic acid.

OLEUM MENTHÆ PIPERITÆ—*Oil of Peppermint.—London, Edinburgh, and United States.*

OLEUM HERBÆ FLORESCENTIS MENTHÆ PIPERITIDIS—*Oil of Peppermint.—Dublin.*

HUILE DE MENTHE—*Oil of Peppermint.—Paris Codex.*

Obtained by distilling the fresh herb with water. It is colourless, or nearly so, but becomes dark by age. It has a penetrating odour like that of the plant, and a burning aromatic taste, followed by a sensation of cold. English oil of peppermint is superior to the foreign. Its sp. gr. is about .902. It boils at 365 F. In a warm, dry, and favourable season, the produce of oil from a given quantity of the fresh herb is double that which it yields in a wet and cold season. Two pounds of fresh herb yield from one drachm and a half to three drachms and half.

OLEUM MENTHÆ PULEGII—*Oil of Pennyroyal.—London, Edinburgh, and Dublin.*

OLEUM HEDEOMÆ—*Oil of Pennyroyal.—United States.*

Obtained by distilling the fresh herb with water. It has a pale brown colour, a warm taste, and the peculiar odour of the herb. It boils at 395 F. Its sp. gr. is 925. The fresh herb yields about 1-120th to 1-100th of its weight of oil.

The oleum hedeomæ of the United States, though analogous in properties to the European pennyroyal, is derived from a distinct plant (the hedeomæ pulegioides) peculiar to North America. It has a light yellow colour, with the odour and taste of the herb. Its sp. gr. is .948.

OLEUM MENTHÆ VIRIDIS—*Oil of Spearmint.—London, Edinburgh, and United States.*

OLEUM HERBÆ FLORESCENTIS MENTHÆ VIRIDIS.—*Dublin.*

Obtained by distilling the fresh herb with water. It is of a pale yellowish colour, but becomes darker by keeping. It has the odour and taste of the plant; its sp. gr. is .914. It boils at 320° F. The average produce of the plant is not more than 1.500th.

OLEUM MONARDÆ—*Oil of Horsemint.—United States.*

Obtained by distilling the fresh herb of the monarda punctata; it has a reddish amber colour, a fragrant odour, and a warm, very pungent taste.

HUILE DE MOUTARDE—*Oil of Mustard, P.*—Reduce mustard-seed (sinapis nigra) to powder, and separate the fixed oil by expression; powder the residuary cake, and distil with water. Collect the oil which comes over, and distil again, to purify it.—*Paris Codex.*

Essential oil of mustard does not exist ready formed in the seeds, but is produced by the action of the water in the same manner as the volatile oil of almonds. It is pale, yellow, or colourless; it has a most penetrating odour, and a most acrid burning taste. Its sp. gr. at 68° F. is 1.015. It boils at 290° F. It is slightly soluble in water, but readily so in alcohol and ether.

OLEUM ORIGANI—*Oil of Marjoram.—London, Edinburgh, and Dublin.*

OLEUM ORIGANI—*Oil of Origanum.—United States.*

Obtained by distilling the herb. As imported it has a red colour, which may be removed by distillation. One hundred and fifty pounds of dried leaves of common marjoram yield fifteen ounces of oil. Its sp. gr. is .940. It boils at 354°. It has an acrid taste, and the odour of the plant.

OLEUM PIMENTÆ—*Oil of Pimento.—London, Edinburgh, and United States.*

OLEUM BACCARUM PIMENTÆ—*Oil of Pimento.—Dublin.*

Obtained by distilling bruised allspice with water. It yields about six per cent. It has a reddish-brown colour, and the odour and pungent taste of the pimento. Its sp. gr. is 1.021. The oil of pimento of commerce is a mixture of two oils, the one heavy the other light, of which the light distils over first, thus differing from the oil of cloves.

OLEUM ROSMARINI—*Oil of Rosemary.—London, Edinburgh, Dublin, and United States.*

HUILE DE ROMARIN—*Oil of Rosemary.—Paris Codex.*

Obtained by distilling rosemary tops with water. It is transparent and colourless, with the odour of rosemary, and a hot aromatic taste. Its sp. gr. is .897, and it boils at 365° F. One pound of the fresh herb yields about one drachm of the oil.

OLEUM RUTÆ—*Oil of Rue.—Edinburgh and Dublin.*

HUILE DE RUE—*Oil of Rue.—Paris Codex.*

Obtained by distilling the fresh herb with water. When recently drawn, the colour of this oil is yellow; it deepens by age; it has a bitterish acrid taste and powerful odour; its sp. gr. is .911; it congeals at 40° F. From twelve pounds of the leaves gathered before the plant had flowered Lewis obtained three drachms of oil; but the same quantity of herb with the seeds almost ripe produced above one ounce.

OLEUM SABINÆ—*Oil of Savine.—Edinburgh and United States.*

OLEUM FOLIORUM SABINÆ—*Oil of Savine.—Dublin.*

Obtained by distilling the fresh tops with water. It is limpid, and almost colourless, having the odour of the plant, and an exceedingly acrid taste. Its sp. gr. is .915. Two pounds of savine are said to yield about five ounces of oil.

OLEUM SASSAFRAS—*Oil of Sassafras.—Edinburgh and United States.*

OLEUM CORTICIS ET LIGNI SASSAFRAS—*Oil of Sassafras.—Dublin.*

HUILE DE SASSAFRAS—*Oil of Sassafras—Paris Codex.*

Obtained by distilling sassafras-wood (the bruised root, ED.) with water. It is colourless, but when kept becomes yellow or red. Its odour is fragant, and its taste hot and acrid. Its sp. gr. is 1.094. Water separates it into two oils, the one lighter, the other heavier, than water. Sixty pounds of bruised sassafras yield about twelve ounces of oil.—(THOMSON.)

OLEUM SUCCINI—*Oil of Amber, L.*—Put amber into an alembic, so that an acid liquor, an oil, and a salt, contaminated with the oil, may distil in a sandbath, with a heat gradually increased. Afterwards let the oil distil again, and a third time.—*London.*

OLEUM SUCCINI RECTIFICATUM—*Rectified Oil of Amber, D.*—Take of the oil which comes over in the preparation of succinic acid a pound, water 6 pints. Distil until two thirds of the water have passed into the receiver; then separate the oil.—*Dublin.*

OLEUM SUCCINI—*Oil of Amber, U.S.*—Take of amber, in powder, any quantity. Put the amber, previously mixed with an equal weight of sand, into a glass retort, which is to be only half filled; then distil, by means of a sandbath, with a gradually increasing heat, an acid liquor, an oil, and a concrete acid impregnated with oil. Separate the oil from the other matters, and keep it in well-stopped bottles.—*United States.*

OLEUM SUCCINI RECTIFICATUM—*Rectified Oil of Amber, U.S.*—Take of oil of amber a pint, water 6 pints. Mix them in a glass retort, and distil until four pints of the water shall have passed with the oil into the receiver; then separate the oil from the water, and keep it in well-stopped bottles.—*United States.*

Oil of amber, as immediately procured by the distillation of amber, is of a dark colour, a thick consistence, and has a very fœtid odour; but by successive distillations it is obtained of a light colour, nearly limpid, and as fluid as alcohol. Its sp. gr. at 75° is 758. Rectified oil of amber has a strong unpleasant odour, and a hot acrid taste. It is light, volatile, and inflammable. It is slowly acted upon by heat and air, becoming hard and black. It boils at 186°; imparts its taste and smell to water, but nothing more; is soluble in strong alcohol, and combines with oils.

OLEUM TEREBINTHINÆ PURIFICATUM—*Purified Oil of Turpentine, L.*—Take of oil of turpentine a pint; water 4 pints. Let the oil cautiously distil.—*London.*

OLEUM TEREBINTHINÆ PURIFICATUM—*Purified Oil of Turpen-*

tine, E.—Take of oil of turpentine 1 pint; water 4 pints. Distil as long as oil comes over with the water.—*Edinburgh.*

Oleum Terebinthinæ Purificatum—*Purified Oil of Turpentine, D.*—Take of oil of turpentine 2 pints; water 4 pints. Distil cautiously a pint and a half of the oil.—*Dublin.*

The rectified oil is a little lighter than the common oil, and completely free from any resinous admixture; it is colourless, limpid, and has a high refracting power. Its sp. gr. at 50° is 872; it boils at 313°.

Medicated and other Oils.

Oleum Amygdalarum—*Oil of Almonds, D.*—Bruise fresh almonds in a mortar; and then express the oil by a press, without heat.—*Dublin.*

Huile d'Amandes Douces—*Oil of Sweet Almonds.—Paris Codex.*

The oil obtained from both the sweet and the bitter almond is equally free from bitterness, if heat be not employed. Sixteen ounces of almonds yield about five ounces of a bland, inodorous oil, of a very slightly sweetish taste, which is at first a little turbid, but soon becomes clear. Its colour is a very pale greenish yellow, and its sp. gr. 932. The oil from the bitter almonds, it is said, keeps longer without growing rancid than that from the sweet almond. It is soluble in ether in the proportion of ten fluidrachms to four ounces of ether.—Thomson.

Huile Camphrée—*Camphorated Oil, P.*—Take of refined camphor 64 parts; olive oil 440 parts. Reduce the camphor to fine powder by triturating it with a little rectified spirit; and rub the oil with it in a marble mortar until it is completely dissolved.—*Paris Codex.*

Huile de Camomille—*Oil of Chamomile, P.*—Take of dried chamomile flowers 64 parts; olive oil 500 parts. Digest them for two hours at a gentle heat in a sandbath, and in a covered vessel, agitating occasionally; strain with slight pressure, and filter.—*Paris Codex.*

In the same manner prepare—

Huile de Sommites d'Absinthe—*Oil of Wormwood, P.*

Huile de Sommites de Rue—*Oil of Rue, P.*

Huile de Fleurs de Mélilot—*Oil of Melilot, P.*

Huile de Fleurs de Millepertuis—*Oil of St. John's Wort, P.*

Huile de Fleurs de Sureau—*Oil of Elderflowers, P.*

Huile de Cantharides—*Oil of Cantharides, P.*—Take of cantharides, coarsely powdered, 125 parts; olive oil 2,000 parts. Digest for six hours in a closed vessel, in the heat of a water-bath; strain with pressure, and filter.—*Paris Codex.*

Huile de Cigue—*Oil of Hemlock, P.*—Take of fresh hemlock leaves 500 parts; olive oil 1,000 parts. Bruise the hemlock leaves, mix them with the oil, and heat them over a gentle fire, until the leaves become crisp; then allow them to digest for two hours; strain with pressure, and filter.—*Paris Codex.*

In the same manner prepare—

Huile de Belladone—*Oil of Belladonna, P.*

Huile de Jusquiame—*Oil of Henbane, P.*

Huile de Mandragore—*Oil of Mandrake, P.*

Huile de Nicotiane—*Oil of Tobacco, P.*

Huile de Stramonium—*Oil of Thornapple, P.*

Huile de Croton Tiglii—*Oil of Croton, P.*—Take of croton seeds any convenient quantity. Powder the seeds, and press them strongly between iron plates, heated; preserve the oil which is obtained, and filter in about fifteen days, to purify it. Break up the cake which remains, and heat it in a water-bath for ten minutes with twice its weight of alcohol; strain with pressure. Distil the liquor, and preserve the alcohol which passes over. Allow the thick brown mass which remains in the still to settle for a fortnight; then filter, to separate the deposit which forms. Mix this with the oil obtained by expression.—*Paris Codex.*

Croton seeds yield about thirty per cent. of oil, though double this quantity may be obtained by exhausting them with alcohol, as ordered by the Paris Codex. As met with in commerce, it varies from a pale straw colour to a dark brown. The sp. gr. of various specimens varies from 947 to 953 at 60°. When genuine, this oil is perfectly soluble in an equal bulk of alcohol, of sp. gr. 796 at ordinary temperature.

Huile de Baies de Laurier—*Oil of Laurel Berries, P.*—Cru h fresh laurel berries, and heat the pulp gently for a short time; then press quickly, and allow the oil to deposit.—*Paris Codex.*

Oil of laurel or oil of bays is of a butyraceous consistence. It is obtained also from the dried berries, by exposing them to the vapour of water until thoroughly soaked, and then rapidly pressing them between heated metallic plates. By this method they yield one fifth of their weight of oil. It has a greenish colour, and the odour of the berries.

Oleum Lini—*Linseed Oil, D.*—Bruise the seeds of common flax, and afterwards express the oil without heat.—*Dublin.*

The proportion of oil thus obtained is about 20 per cent. of the seed employed. It is combined with a considerable portion of mucilage, has a strong disagreeable odour, and a nauseous taste; is not congealed except by a cold below 0° F., and boils at 600. Its colour is a high yellow, and its sp. gr. 932. Four ounces of alcohol are required to dissolve one drachm of it; but the same quantity of ether takes up a fluid ounce and a half.

Huile de Ricins—*Castor Oil—Paris Codex.*—Obtained by pressure from the seeds of the ricinus communis. The oil thus obtained is heated with water until the water boils, by which the mucilage and albumen are separated. When expressed from the seeds cold it is quite transparent, and has only a slight tinge of yellow, but when obtained by boiling it is deeper colour. It is viscid; its sp. gr. at 77° is .9575, according to Saussure. It may be mixed in all proportions with alcohol and ether.

Huile de Roses Pales—*Oil of Rose, P.*—Take of the petals of rosa centifolia 500 parts; olive oil 2,000 parts. Bruise the petals in a marble mortar; mix them with the oil, and allow them to macerate for three days, shaking occasionally. Strain with pressure; decant the oil, and add a fresh quantity of roses equal to the first; strain and press as before; repeat this a third time. Filter the oil, and preserve in a cool place.—*Paris Codex.*

Pills.

Pilulæ Aloës Compositæ—*Compound Pills of Aloes, L.*—Take of aloes, powdered, an ounce; extract of gentian half an ounce; oil of caraway 40 minims; syrup as much as may be sufficient. Rub them together until incorporated.—*London.*

Pilulæ Aloes—*Pill of Aloes, E.*—Take of socotrine aloes and castile soap equal parts; conserve of red roses a sufficiency. Beat them into a proper pill mass. This pill may be also correctly made with the finer qualities of East India aloes, as the socotrine variety is very scarce; and many, not without reason, prefer the stronger Barbadoes aloes.—*Edinburgh.*

Pilulæ Aloes Compositæ—*Pills of Aloes and Ginger, D.*—Take of hepatic aloes one ounce; ginger-root, in powder, a drachm; soap half an ounce; essential oil of peppermint half a drachm. Let the aloes and ginger be rubbed together to a powder; then add the the soap and the oil, so as to form a mass.—*Dublin.*

Pilulæ Aloes—*Aloetic Pills, U.S.*—Take of aloes, in powder, soap, each an ounce. Beat them with water, so as to form a mass, to be divided into two hundred and forty pills.—*United States.*

Pilulæ Aloes et Asafœtidæ—*Pills of Aloes and Asafœtida, E.*—Take of aloes (socotrine or East Indian), asafœtida, and castile soap, equal parts. Beat them with conserve of red roses into a proper pill mass.—*Edinburgh.*

Pilulæ Aloes et Asafœtidæ—*Pills of Aloes and Asafœtida, U.S.*—Take of aloes, in powder, asafœtida, soap, each half an ounce. Beat them with water, so as to form a mass, to be divided into one hundred and eighty pills.—*United States.*

Pilulæ Aloes et Ferri—*Pills of Aloes and Iron, E.*—Take of sulphate of iron 3 parts; Barbadoes aloes 2 parts; aromatic powder 6 parts. Beat them with conserve of red roses into a proper pill mass.—*Edinburgh.*

Pilulæ Aloës cum Myrrhâ—*Pills of Aloes with Myrrh, L.*—Take of aloes 2 ounces; saffron, myrrh, each an ounce; syrup as much as may be sufficient. Rub the aloes and myrrh separately to powder; then beat the whole together until incorporated.—*London.*

Pilulæ Aloes et Myrrhæ—*Pills of Aloes and Myrrh, E.*—Take of aloes (socotrine or East Indian) 4 parts; myrrh 2 parts; saffron 1 part. Beat them into a proper mass with a sufficient quantity of conserve of red roses.—*Edinburgh.*

Pilulæ Aloes cum Myrrhâ—*Pills of Aloes with Myrrh, D.*—Take of hepatic aloes 2 ounces; myrrh, saffron, of each 1 ounce; simple syrup a sufficient quantity. Rub the myrrh and the aloes separately to powder, and beat the whole together into a mass.—*Dublin.*

Pilulæ Aloës et Myrrhæ—*Pills of Aloes and Myrrh, U.S.*—Take of aloes, in powder, 2 ounces; myrrh, in powder, an ounce; saffron half an ounce; syrup a sufficient quantity. Beat the whole together, so as to form a mass, to be divided into four hundred and eighty pills.—*United States.*

Pilules Antecibum—*Dinner Pills, P.*—Take of powdered aloes 24 parts; extract of cinchona 12 parts; powdered cinnamon 4 parts; syrup of wormwood Q.S. Beat them together until incorporated.—*Paris Codex.*

Pilules d'Anderson—*Anderson's Pills, P.*—Take of powdered aloes 24 parts; powdered gamboge 24 parts; oil of aniseed 4 parts; simple syrup Q.S. Beat them together until incorporated.—*Paris Codex.*

Pilulæ Asafœtidæ—*Pills of Asafœtida, E.*—Take of asafœtida, galbanum, and myrrh, 3 parts of each; conserve of red roses 4 parts, or a sufficiency. Mix them, and beat them into a proper pill mass.—*Edinburgh.*

Pilulæ Asafœtidæ—*Asafœtida Pills, U.S.*—Take of asafœtida an ounce and a half; soap half an ounce. Beat them with water, so as

to form a mass, to be divided into two hundred and forty pills.—*United States.*

Pilules Asiatiques—*Pills of Arsenic, P.*—Take of arsenious acid 1 grain; black pepper, powdered, 12 grains; gum arabic, powdered, 2 grains; water Q.S. Mix very carefully, and divide into twelve pills.—*Paris Codex.*

Pilules Balsamiques de Morton—*Morton's Balsamic Pills, P.*—Take of woodlice, powdered, 72 parts; gum ammoniacum, powdered, 36 parts; benzoic acid 24 parts; saffron, powdered, 4 parts; balsam of tolu, dried, 4 parts; aniseed balsam of sulphur 24 parts. Beat them until thoroughly incorporated.—*Paris Codex.*

Pilulæ Cambogiæ Compositæ—*Compound Pills of Camboge, L. and D.*—Take of camboge, powdered, a drachm; aloes, powdered, a drachm and a half; ginger, powdered, half a drachm; soap 2 drachms. Mix the powders together; afterwards, the soap being added, beat the whole until incorporated.—*London and Dublin.*

Pilulæ Cambogiæ—*Pills of Gamboge, E.*—Take of gamboge, East Indian or Barbadoes aloes, and aromatic powder, of each 1 part; castile soap 2 parts. Pulverize the aloes and gamboge separately, mix all the powders, add the soap, and then a sufficiency of syrup; beat the whole into a proper pill mass.—*Edinburgh.*

Pilulæ Calomelanos et Opii—*Pills of Calomel and Opium, E.*—Take of calomel 3 parts; opium 1 part; conserve of red roses a sufficiency. Beat them into a proper mass, which is to be divided into pills, each containing two grains of calomel.—*Edinburgh.*

Pilulæ Catharticæ Compositæ—*Compound Cathartic Pills, U.S.*—Take of compound extract of colocynth, in powder, half an ounce; extract of jalap, in powder, mild chloride of mercury, each 3 drachms; gamboge, in powder, 2 scruples. Mix them together; then with water form them into a mass, to be divided into one hundred and eighty pills.—*United States.*

Pilulæ Colocynthidis—*Pills of Colocynth, E.*—Take of socotrine or East Indian aloes, and scammony, of each 8 parts; colocynth 4 parts; sulphate of potash, and oil of cloves, of each 1 part; rectified spirit a sufficiency. Pulverize the aloes, scammony, and sulphate of potash together; mix them with the colocynth, previously reduced to fine powder; add the oil of cloves; and, with the aid of a small quantity of rectified spirit, beat the whole into a proper pill mass, which is to be divided into five-grain pills.—*Edinburgh.*

Pilulæ Colocynthidis Compositæ—*Compound Colocynth Pills, D.*—Take of socotrine aloes, scammony, of each 8 parts; colocynth pulp 4 parts; sulphate of potassa, oil of cloves, of each one part. Beat the extract, gum resin, and sulphate together into powder; then, with the colocynth pulp rubbed to fine powder; mix them with the oil; and, finally, beat the whole into a mass with mucilage of gum.—*Dubin.*

Pilulæ Colocynthidis et Hyoscyami—*Pills of Colocynth and Henbane, E.*—Take of the colocynth pill mass 2 parts; extract of hyoscyamus 1 part. Beat them well together, adding a few drops of rectified spirit, if necessary; and divide the mass into five-grain pills.—*Edinburgh.*

Pilulæ Conii Compositæ—*Compound Pills of Hemlock, L.*—Take of extract of hemlock 5 drachms; ipecacuanha, powdered, 1 drachm; mixture of acaciæ as much as may be sufficient. Beat them together until incorporated.—*London.*

Pilulæ Copaiba—*Pills of Copaiba, U.S.*—Take of copaiba 2 ounces; magnesia, recently prepared, a drachm. Mix them, and set the mixture aside until it concretes into a pilular mass, which is to be divided into two hundred pills.—*United States.*

Pilulæ Cupri Ammoniati—*Pills of Ammoniated Copper, E.*—Take of ammoniated copper, in fine powder, 1 part; bread crumb 6 parts; solution of carbonate of ammonia a sufficiency. Beat them into a proper mass; and divide it into pills, containing each half a grain of ammoniated copper.—*Edinburgh.*

Pilules de Cynoglosse—*Pills of Hound's Tooth, P.*—Take of the dried bark of the root of common hound's-tooth 16 parts; henbane seeds 16 parts; watery extract of opium 16 parts; myrrh 24 parts; olibanum 20 parts; saffran 6 parts; castor 6 parts; syrup of opium, Q.S. Powder together the hound's-tooth and henbane seeds, and, separately, the other substances; soften the extract of opium with a little water; and incorporate it thoroughly with the powders. It contains the eighth of its weight of extract of opium.—*Paris Codex.*

Pilulæ Digitalis et Scillæ—*Pills of Foxglove and Squill, E.*—Take of digitalis and squill, of each, 1 part; aromatic electuary 2 parts. Beat them into a proper mass with conserve of red roses; and divide the mass into four-grain pills.—*Edinburgh.*

Pilulæ Ferri Compositæ—*Compound Pills of Iron, L. and D.*—Take of myrrh, powdered, 2 drachms; carbonate of soda, sulphate of iron, treacle, each, a drachm. Rub the myrrh with the carbonate of soda; then, the sulphate of iron being added, rub them again; afterwards beat the whole in a vessel previously warmed until incorporated.—*London and Dublin.*

Pilulæ Ferri Sulphatis—*Pills of Sulphate of Iron, E.*—Take of dried sulphate of iron 2 parts; extract of taraxacum 5 parts; conserve of red roses 2 parts; liquorice-root, powder, 3 parts. Beat them together into a proper mass, which is to be divided into five-grain pills.—*Edinburgh.*

Pilulæ Ferri Compositæ—*Compound Pills of Iron, U.S.*—Take of myrrh, in powder, 2 drachms; carbonate of soda, sulphate of iron, each, a drachm; syrup a sufficient quantity. Rub the myrrh with the carbonate of soda; then add the sulphate of iron, and again rub them; lastly, beat them with the syrup, so as to form a mass, to be divided into eighty pills.—*United States.*

Pilulæ Ferri Carbonatis—*Pills of Carbonate of Iron, E.*—Take of the saccharine carbonate of iron 4 parts; conserve of red roses 1 part. Beat them into a proper mass, to be divided into five-grain pills.—*Edinburgh.*

Pilulæ Ferri Carbonatis—*Pills of Carbonate of Iron—Vallet's Ferruginous Pills, U.S.*—Take of sulphate of iron 4 ounces; carbonate of soda 5 ounces; clarified honey 2½ ounces; syrup, boiling water, each, a sufficient quantity. Dissolve the sulphate of iron and carbonate of soda, each, in a pint of the water, and to each solution add a fluid ounce of syrup; them mix the two solutions in a bottle just large enough to contain them, close it accurately with a stopper, and set it by, that the carbonate of iron may subside. Pour off the supernatant liquid, and having washed the precipitate with warm water sweetened with syrup in the proportion of a fluid ounce of the latter to a pint of the former, until the washings no longer have a saline taste, place it upon a flannel cloth, and express as much of the water as possible; then immediately mix it with the honey. Lastly, heat the mixture by means of a water-bath, until it attains a pilular consistence.—*United States.*

Pilulæ Galbani Compositæ—*Compound Pills of Galbanum, L.*—Take of galbanum an ounce; myrrh, sagapenum, each, an ounce and a half; asafœtida half an ounce; syrup as much as may be sufficient. Beat them together until incorporated.—*London.*

Pilulæ Galbani Compositæ—*Compound Pills of Galbanum, D.*—Take of asafœtida half an ounce; myrrh, in powder, an ounce and a half; sagapenum, galbanum, of each, an ounce; oil of amber half a drachm. Rub them together; make them into a mass with simple syrup.—*Dublin.*

Pilulæ Galbani Compositæ—*Compound Pills of Galbanum, U.S.*—Take of galbanum, myrrh, each, an ounce and a half; asafœtida half an ounce; syrup a sufficient quantity. Beat them together so as to form a mass, to be divided into four hundred and eighty pills.—*United States.*

Pilulæ Hydrargyri—*Pills of Mercury, L. and D.*—Take of mercury 2 drachms; conserve of red roses 3 drachms; liquorice, powdered, a drachm. Rub the mercury with the confection until globules can no longer be seen; then, the liquorice being added, beat the whole together until incorporated.—*London and Dublin.*

Pilulæ Hydrargyri—*Pills of Mercury, E.*—Take of mercury 2 parts; liquorice-root, in powder, 1 part; conserve of red roses, 3 parts. Beat the mercury and conserve into a uniform mass till globules of mercury can be no longer detected, then add the liquorice-root, and beat the whole again into a proper mass, which is to be divided into five-grain pills.—*Edinburgh.*

Pilulæ Hydrargyri—*Mercurial Pills, U.S.*—Take of mercury an ounce; confection of roses an ounce and a half; liquorice-root, in powder, half an ounce. Rub the mercury with the confection till all the globules disappear. Then add the liquorice-root, and beat the whole into a mass, to be divided into four hundred and eighty pills.—*United States.*

Pilules Mercurielles—*Mercurial Pills, P.*—Take of mercury 24 parts; aloes, in powder, 24 parts; rhubarb, in powder, 12 parts; scammony, in powder, 8 parts; black pepper, in powder, 4 parts; honey Q.S. Triturate the mercury with the honey until globules can no longer be seen, then add the powders, and beat into a uniform mass, which is to be divided into four-grain pills, as required. Each pill will contain one grain of mercury, one grain of aloes, and a third of a grain of scammony.—*Paris Codex.*

One grain of mercury is contained in three grains of the mass made according to the London, Edinburgh, and Dublin formulæ.

In these preparations the mercury is first minutely divided by the viscosity of the substance with which it is triturated, and it is supposed that the metal is oxidized; and that the great extension of surface, and in some degree the substance used in the trituration, facilitate this effect. Further experiments are certainly requisite to determine this question. Syrup, honey, mucilage, soap, guaiacum, and other matters, have been occasionally employed; on the Continent the oil of eggs has been used for dividing the mercury, and certainly no substance so rapidly assists in producing the desired effect as this oil, when it has been kept for some time. The more

assiduously the trituration is continued, the more perfect is the preparation. The sufficient division of the metal, or the oxidizement of the whole of the globules, or the extinction or killing of the mercury, in the common language of the laboratory, is known to be completed when, on rubbing a small portion of the mass with the point of the finger on a piece of clean paper, no metallic globules are perceptible.—Thompson.

Pilulæ Hydrargyri Chloridi Compositæ—*Compound Pills of Chloride of Mercury, L.*—Take of chloride of mercury, oxysulphuret of antimony, each, 2 drachms; guaiacum resin, powdered, half an ounce; treacle 2 drachms. Rub the chloride of mercury with the oxysulphuret of antimony, afterwards with the guaiacum resin, and the treacle until incorporated.—*London.*

Pilulæ Calomelanos Compositæ—*Compound Pills of Calomel, E.*—Take of calomel, and golden sulphuret of antimony, of each, one part; guaiac, in fine powder, and treacle, of each, 2 parts. Mix the solids in fine powder, then the treacle, and beat the whole into a solid pill mass, to be divided into six-grain pills.—*Edinburgh.*

Pilulæ Hydrargyri Chloridi Mitius—*Pills of Mild Chloride of Mercury, U.S.*—Take of mild chloride of mercury half an ounce; gum arabic, in powder, a drachm; syrup, a sufficient quantity. Mix together the chloride of mercury and the gum, then beat them with the syrup, so as to form a mass, to be divided into two hundred and forty pills.—*United States.*

Pilulæ Calomelanos et Opii—*Pills of Calomel and Opium, E.*—Take of calomel 3 parts; opium 1 part; conserve of red roses, a sufficiency. Beat them into a proper mass, which is to be divided into pills, each containing two grains of calomel.—*Edinburgh.*

Pilulæ Ipecacuanhæ Compositæ—*Compound Pills of Ipecacuanha, L.*—Take of compound powder of ipecacuanha 3 drachms; squill, fresh dried, ammoniacum, each, a drachm; mixture of acaciæ as much as may be sufficient. Beat them together until incorporated.—*London.*

Pilulæ Ipecacuanhæ et Opii—*Pills of Ipecacuanha and Opium, E.*—Take of the powder of ipecacuan and opium 3 parts; conserve of red roses 1 part. Beat them into a proper mass, which is to be divided into four-grain pills.—*Edinburgh.*

Pilules de Meglin—*Pills of Meglin, P.*—Take of extract of henbane 32 parts; extract of valerian 32 parts; oxide of zinc 32 parts. Mix, and divide into three-grain pills.—*Paris Codex.*

Pilulæ Opii sive Thebaiacæ—*Opiate Pills, E.*—Take of opium 1 part; sulphate of potass 3 parts; conserve of red roses 1 part. Beat them into a proper mass, which is to be divided into five-grain pills. It is to be observed that this pill contains twice as much opium as the opiate pill of the last Latin edition of this Pharmacopœia.—*Edinburgh.*

Pilulæ Opii—*Pills of Opium, U.S.*—Take of opium, in powder, a drachm; soap 12 grains. Beat them with water, so as to form a mass, to be divided into sixty pills.—*United States.*

Pilulæ Plumbi Opiatæ—*Pills of Opium and Lead, E.*—Take of acetate of lead 6 parts; opium 1 part; conserve of red roses about 1 part. Beat them into a proper mass, which is to be divided into four-grain pills. This pill may be made also with twice the quantity of opium.—*Edinburgh.*

Pilulæ Quinæ Sulphatis—*Pills of Sulphate of Quinia, U.S.*—Take of sulphate of quinia an ounce; gum arabic, in powder, 2 drachms; syrup a sufficient quantity. Mix together the sulphate of quinia and the gum; then beat them with the syrup, so as to form a mass, to be divided into four hundred and eighty pills.—*United States.*

Pilulæ Rhei Compositæ—*Compound Pills of Rhubarb, L.*—Take of rhubarb, powdered, an ounce; aloes, powdered, 6 drachms; myrrh, powdered, half an ounce; soap a drachm; oil of caraway half a fluidrachm; syrup as much as may be sufficient. Mix the powders together, then beat the whole together until incorporated.—*London.*

Pilulæ Rhei Compositæ—*Compound Pills of Rhubarb, E.*—Take of rhubarb, in fine powder, 12 parts; aloes, in fine powder, 9 parts; myrrh and castile soap, of each, 6 parts; oil of peppermint, 1 part; conserve of red roses 5 parts. Mix them, and beat them into a proper mass, and divide it into five-grain pills. This pill may be also made without oil of peppermint, when so preferred.—*Edinburgh.*

Pilulæ Rhei Compositæ—*Compound Pills of Rhubarb, U.S.*—Take of rhubarb, in fine powder, an ounce; aloes, in powder, 6 drachms; myrrh, in powder, half an ounce; oil of peppermint half a fluidrachm; syrup of orange peel a sufficient quantity. Beat the whole together, so as to form a mass, to be divided into two hundred and forty pills.—*United States.*

Pilulæ Rhei—*Pills of Rhubarb, E.*—Take of rhubarb, in fine powder, 9 parts; acetate of potash 1 part; conserve of red roses 5 parts. Beat them into a proper mass, and divide into five-grain pills.—*Edinburgh.*

Pilulæ Rhei—*Pills of Rhubarb, U.S.*—Take of rhubarb, in powder, 6 drachms; soap 2 drachms. Beat them with water, so as to form a mass, to be divided into one hundred and twenty pills.—*United States.*

Pilulæ Rhei et Ferri—*Pills of Rhubarb and Iron, E.*—Take of dried sulphate of iron 4 parts; extract of rhubarb 10 parts; conserve of red roses 5 parts. Beat them into a proper pill mass, and divide into five-grain pills.—*Edinburgh.*

Pilulæ Sagapeni Compositæ—*Compound Pills of Sagapenum, L.*—Take of sagapenum an ounce; aloes half a drachm; syrup of ginger as much as may be sufficient. Beat them together until incorporated.—*London.*

Pilulæ Saponis Compositæ—*Compound Pills of Soap, L. and D.*—Take of hard opium, powdered, half an ounce; soap 2 ounces. Beat them together until incorporated.—*London and Dublin.*

Pilulæ Saponis Compositæ—*Compound Pills of Soap, U.S.*—Take of opium, in powder, half an ounce; soap 2 ounces. Beat them together, so as to form a pilular mass.—*United States.*

Five grains contain one grain of opium.

Pilules de Savon—*Pills of Soap, P.*—Take of medicinal soap 125 parts; marshmallow-root, in powder, 16 parts; nitrate of potash 4 parts. Beat them until properly incorporated, and divide into four-grain pills.—*Paris Codex.*

Pilulæ Scillæ Compositæ—*Compound Pills of Squill, L. and D.*—Take of squill, fresh dried and powdered, a drachm; ginger, powdered, ammoniacum, powdered, each 2 drachms; soap 3 drachms; syrup as much as may be sufficient. Mix the powders together; then beat them with the soap, and add the syrup, so as to obtain a proper consistence.—*London and Dublin.*

Pilulæ Scillæ—*Pills of Squill, E.*—Take of squill, in fine powder, 5 parts; ammoniac, ginger, in fine powder, and Spanish soap, of each, 4 parts; conserve of red roses 2 parts. Mix the powders, add the other articles, beat them into a uniform mass, and divide it into five-grain pills.—*Edinburgh.*

Pilulæ Scillæ Compositæ—*Compound Pills of Squill, U.S.*—Take of squill, in powder, a drachm; ginger, in powder, ammoniac, in powder, each, 2 drachms; soap 3 drachms; syrup a sufficient quantity. Mix the powders together, then beat them with the soap, and add the syrup, so as to form a mass, to be divided into one hundred and twenty pills.—*United States.*

Pilulæ Styracis Compositæ—*Compound Pills of Storax, L.*—Take of storax, strained, 3 drachms; hard opium, powdered, saffron, each, a drachm. Beat them until incorporated.—*London.*

Pilulæ Styracis—*Pills of Storax, E.*—Take of opium and saffron, of each, one part; extract of storax 2 parts. Beat them into a uniform mass, which is to be divided into four-grain pills.—*Edinburgh.*

Pilules de Térébinthine—*Pills of Turpentine, P.*—Take of Venice turpentine any quantity. Heat the turpentine with water until it becomes hard enough, on cooling, to roll into pills.—*Paris Codex.*

Pilules Toniques de Bacher—*Bacher's Tonic Pills, P.*—Take of the dried root of black hellebore 500 parts; purified carbonate of potash 125 parts; alcohol, of sp. gr. 920, 2,000 parts; white wine 2,000 parts. Bruise the hellebore-root, and digest it in a matras for twelve hours with the potash and alcohol; strain with pressure; add the wine to the residue, and allow it to macerate for twenty-four hours, then boil and strain; mix the alcoholic and vinous liquors; clarify them by deposition or filtration, and evaporate them to the consistence of a firm extract. Take, then, of this extract 64 parts; extract of myrrh 64 parts; powder of blessed centaury 32 parts. Beat them together until incorporated, and divide into four-grain pills.—*Paris Codex.*

Powders.

Pulvis Aloës Compositus—*Compound Powder of Aloes, L.*—Take of aloes an ounce and a half; guaiacum resin an ounce; compound powder of cinnamon half an ounce. Rub the aloes and the guaiacum resin separately to powder; then mix them with the compound powder of cinnamon.—*London.*

Pulvis Aloes Compositus—*Powder of Aloes with Guaiac, D.*—Take of hepatic aloes an ounce and a half; guaiacum gum resin an ounce; aromatic powder half an ounce. Rub the aloes and the guaiacum separately to powder; then mix them with the aromatic powder.—*Dublin.*

Pulvis Aloes cum Canella—*Powder of Aloes with Canella, D.*—

Take of hepatic aloes a pound; white canella 3 ounces. Rub them separately to powder, and then mix them.—*Dublin.*

Pulvis Aloës et Canella—*Powder of Aloes and Canella—Hiera Picra, U.S.*—Take of aloes a pound; canella 3 ounces. Rub them separately into a very fine powder, and mix them.—*United States.*

Pulvis Aluminis Compositus—*Compound Powder of Alum, E.*—Take of alum 4 ounces; kino 1 ounce. Mix them, and reduce them to fine powder.—*Edinburgh.*

Pulvis Asari Compositus—*Compound Powder of Asarabacca, D.*—Take of dried leaves of asarabacca an ounce; lavender flowers, dried, 1 drachm. Rub them together to a powder.—*Dublin.*

Pulvis Cinnamomi Compositus—*Compound Powder of Cinnamon, L.*—Take of cinnamon 2 ounces; cardamom an ounce and a half; ginger an ounce; long pepper half an ounce. Rub them together, so that a very fine powder may be made.—*London.*

Pulvis Aromaticus—*Aromatic Powder, E.*—Take of cinnamon, cardamom seeds, and ginger, of each, equal parts. Mix them, and reduce to a very fine power, which is to be kept in well-closed glass vessels.—*Edinburgh.*

Pulvis Aromaticus—*Aromatic Powder, D.*—Take of cinnamon bark 2 ounces; lesser cardamom seeds, freed from the husks, ginger, long pepper, of each, 1 drachm. Rub them together to a powder.—*Dublin.*

Pulvis Aromaticus—*Aromatic Powder, U.S.*—Take of cinnamon, ginger, each, 2 ounces; cardamom, deprived of the capsules, nutmeg, grated, each, an ounce. Rub them together into a very fine powder.—*United States.*

Pulvis Cornu Cervini Usti—*Powder of Burnt Hartshorn, D.*—Let pieces of hartshorn be burnt until they become white; then reduce them to a very fine powder.—*Dublin.*

Pulvis Cretæ Compositus—*Compound Powder of Chalk, L. and D.*—Take of prepared chalk half a pound; cinnamon 4 ounces; tormentil, acaciæ, each 3 ounces; long pepper half an ounce. Rub them separately to very fine powder; then mix them.—*London and Dublin.*

Pulvis Cretæ Compositus—*Compound Powder of Chalk, E.*—Take of prepared chalk 4 ounces; cinnamon, in fine powder, one drachm and a half; nutmeg, in fine powder, a drachm. Triturate them well together.—*Edinburgh.*

Pulvis Cretæ Compositus cum Opio—*Compound Powder of Chalk with Opium, L.*—Take of compound powder of chalk 6 ounces and a half; hard opium, powdered, 4 scruples. Mix them.—*London.*

Pulvis Cretæ Opiatus—*Compound Powder of Chalk and Opium, E.*—Take compound chalk powder 6 ounces; powder of opium 4 scruples. Triturate them together thoroughly.—*Edinburgh.*

Poudre Cornachine—*Cornachine Powder, P.*—Take of Aleppo scammony, in powder, 125 parts; bitartrate of potash, in fine powder, 125 parts; tartar emetic 125 parts. Mix them carefully.—*Paris Codex.*

Poudre Dentifrice—*Tooth Powder, P.*—Take of armenian bole 96 parts; red coral 96 parts; cuttle-fish 96 parts; dragons' blood 48 parts; cochineal 12 parts; bitartrate of potash 140 parts; cinnamon 24 parts; cloves 4 parts. Reduce each substance separately to a very fine powder, and mix carefully.—*Paris Codex.*

Poudre Diurétique—*Diuretic Powder, P.*—Take of gum arabic, in powder, 64 parts; sugar, in powder, 64 parts; nitrate of potash, in powder, 32 parts; marshmallow-root, in fine powder, 32 parts.—*Paris Codex.*

Pulveres Effervescentes—*Effervescing Powders, E.*—Take of tartaric acid an ounce; bicarbonate of soda an ounce and 54 grains; or bicarbonate of potass 1 ounce and 160 grains. Reduce the acid and either bicarbonate separately to fine powder, and divide each into sixteen powders; preserve the acid and alkaline powders in separate papers of different colours.—*Edinburgh.*

Poudre Pour les Embaumemens—*Powder for Embalming, P.*—Take of galls, in powder, 100 parts; oak bark, in powder, 100 parts; dried chloride of sodium 75 parts; nitrate of potash 25 parts; rosemary, in powder, 25 parts; lavender, in powder, 25 parts; thyme, in powder, 25 parts; peppermint, in powder, 25 parts; socotrine, or aloes, in powder, 25 parts; benzoin, in powder, 25 parts; myrrh, in powder, 25 parts; ginger, in powder, 25 parts; cloves, in powder, 25 parts; nutmegs, in powder, 25 parts; black pepper, in powder, 25 parts. Mix very carefully.—*Paris Codex.*

Pulvis Jalapæ Compositus—*Compound Powder of Jalap, L.*—Take of jalap 3 ounces; bitartrate of potash 6 ounces; ginger 2 drachms. Rub them separately to powder; then mix them.—*London.*

Pulvis Jalapæ Compositus—*Compound Powder of Jalap, E. and D.*—Take of jalap, in powder, an ounce; bitartrate of potash 2 ounces. Triturate them to a very fine powder.—*Edinburgh and Dublin.*

Pulvis Jalapæ Compositus—*Compound Powder of Jalap, U.S.*—Take of jalap, in powder, an ounce; bitartrate of potassa, in powder, 2 ounces. Mix them.—*United States.*

Pulvis Ipecacuanha Compositus—*Compound Powder of Ipecacuanha, L. and D.*—Take of ipecacuanha, powdered, hard opium, powdered, each a drachm; sulphate of potash, powdered, an ounce. Mix them.—*London and Dublin.*

Pulvis Ipecacuanhæ Compositus—*Compound Powder of Ipecacuanha, E.*—Take of ipecacuan, in powder, and powder of opium, of each 1 ounce; sulphate of potass 8 ounces. Triturate them together thoroughly.—*Edinburgh.*

Pulvis Ipecacuanhæ et Opii—*Powder of Ipecacuanha and Opium—Dover's Powder, U.S.*—Take of ipecacuanha, in powder, opium, in powder, each a drachm; sulphate of potassa an ounce. Rub them together into a very fine powder.—*United States.*

Poudre de Dover—*Dover's Powder, P.*—Take of sulphate of potassa, in powder, 125 parts; nitrate of potassa, in powder, 125 parts; ipecacuanha, in powder, 32 parts; liquorice, in powder, 32 parts; extract of opium, in powder, 32 parts. Dry all the powders carefully, and mix them intimately together.—*Paris Codex.*

Pulvis Kino Compositus—*Compound Powder of Kino, L. and D.*—Take of kino 15 drachms; cinnamon half an ounce; hard opium a drachm. Rub them separately to very fine powder; then mix them.—*London and Dublin.*

Pulvis Quercus Marinæ—*Powder of Yellow Bladder-wrack, D.*—Take of bladder-wrack, in flower, any quantity. Let it be dried and freed from the sordes, then exposed to heat in an iron vessel or crucible, to which a perforated lid is adapted, until, the vapours ceasing, it becomes obscurely red hot. Reduce the carbonaceous matter which remains to powder.—*Dublin.*

Pulvis Rhei Compositus—*Compound Powder of Rhubarb, E.*—Take of magnesia 1 pound; ginger, in fine powder, 2 ounces; rhubarb, in fine powder, 4 ounces. Mix them thoroughly, and preserve the powder in well-closed bottles.—*Edinburgh.*

Pulvis Salinus Compositus—*Compound Saline Powder, E. and D.*—Take of pure muriate of soda, and sulphate of magnesia, 4 ounces; sulphate of potash 3 ounces. Dry the salts separately with a gentle heat, and pulverize each, then triturate them well together, and preserve the mixture in well-closed vessels.—*Edinburgh and Dublin.*

Pulvis Scammonii Compositus—*Compound Powder of Scammony, L. and D.*—Take of scammony, hard extract of jalap, each, 2 ounces; ginger half an ounce. Rub them separately to very fine powder, then mix them.—*London and Dublin.*

Pulvis Scammonii Compositus—*Compound Powder of Scammony, E.*—Take of scammony, and bitartrate of potash, of each, equal parts. Triturate them together to a very fine powder.—*Edinburgh.*

Pulvis Tragacanthæ Compositus—*Compound Powder of Tragacanth, L.*—Take of tragacanth, powdered, acaciæ, powdered, starch, each, an ounce and a half; sugar 3 ounces. Rub the starch and sugar together to powder; then the tragacanth and acaciæ being added, mix them all.—*London.*

Pulvis Tragacanthæ Compositus—*Compound Powder of Tragacanth, E.*—Take of tragacanth, bruised, gum arabic, bruised, and starch, of each, one ounce and a half; pure sugar 3 ounces. Reduce the starch and sugar together to powder, then add the tragacanth and gum arabic, and pulverize the mixture thoroughly.—*Edinburgh.*

Poudre Temperante de Stahl—*Stahl's Powder, P.*—Take of sulphate of potash 282 parts; nitrate of potash 282 parts; sulphuret of mercury 64 parts. Rub them to very fine powder, and mix carefully.—*Paris Codex.*

Poudre Vermifuge—*Vermifuge Powder, P.*—Take of Corsican moss, in powder, 32 parts; worm powder (Pulvis Seminis Contra) 32 parts; rhubarb, in powder, 16 parts. Mix carefully, and preserve in a stopped bottle.—*Paris Codex.*

Pulps.

Cassiæ Fistulæ Pulpæ—*Pulp of Purging Cassia, U.S.*—Take of purging cassia, bruised, a convenient quantity. Pour boiling water on the bruised pods, so that the pulp may be softened; then strain first through a coarse sieve, and afterwards through a hair one, and evaporate by means of the water-bath to a proper consistence.—*United States.*

Pulpe de Casse—*Cassia Pulp, P.*—Take of purging cassia any convenient quantity. Open the cassia and remove as much as possible

of the pulp with a knife; then add warm water, so that the adhering pulp may be softened; then pulp both first through a coarse sieve and afterwards through a fine one.—*Paris Codex.*

Pulpe de Carottes—*Pulp of Carrots, P.*—Take of carrot any convenient quantity. Pulp through a fine sieve.—*Paris Codex.*

In the same manner prepare—

Racine de Patience—*Garden Patience-root.*

Bulb d'Ail—*Garlic.*

Tubercules de Pommes de Terre—*Potato.*

Pulpe de Cigue—*Pulp of Hemlock, P.*—Take of hemlock leaves, cleaned, any convenient quantity. Reduce to a fine paste by beating in a mortar, and then pulp through a fine sieve.—*Paris Codex.*

In the same manner prepare—

Cochléaria—*Scurvy-grass.*

Cresson—*Water-cress.*

Roses—Rouges—*French Rose.*

And all other leaves and fresh flowers.

Pulpe de Cynorrhodons—*Pulp of Hips, P.*—Take of hips any convenient quantity. Gather hips before they are completely ripe, deprive them of their seeds, moisten and soften them with a little white wine, beat them in a mortar into a mass, and pulp through a sieve.—*Paris Codex.*

Pruni Pulpa—*Pulp of Prunes, U.S.*—Take of prunes a convenient quantity. Soften the prunes in the vapour of boiling water, and, having separated the stones, beat the remainder in a marble mortar, and press it through a hair sieve.—*United States.*

Pulpe de Pruneaux—*Pulp of Prunes, P.*—Take of prunes any quantity. Expose the prunes to steam until they are quite soft, and, having separated the stones, beat the other part in a marble mortar, and pass through a hair sieve.—*Paris Codex.*

In the same manner prepare—

Dattes—*Dates.*

Jujubes—*Jujube.*

Ognons de Scillæ—*Squill.*

Ognons Commun—*Onions.*

Tamarinda Pulpa—*Pulp of Tamarinds, U.S.*—Take of tamarinds a convenient quantity. Digest them with a small quantity of water until they become of a uniform consistence; then separate the seeds and filaments by pressing through a hair sieve.—*United States.*

Pulpe de Tamarin—*Pulp of Tamarinds, P.*—Take of tamarinds any quantity. Digest them with a small quantity of water in a gentle heat until they are of a uniform consistence; then pulp through a hair-sieve to separate the seeds and filaments.—*Paris Codex.*

Pastes.

Pate de Gomme Arabique (Pate de Guimauve)—*Gum Arabic Paste, P.*—Take of white gum arabic 500 parts; white sugar 500 parts; water 250 parts; orange flower water 64 parts; white of 6 eggs. Dissolve the gum and sugar in the water by the aid of a water-bath, and evaporate to the consistence of a thick honey, stirring continually. Beat up the albumen with the orange flower water, add it gradually to the solution of gum, and evaporate to a proper consistence.—*Paris Codex.*

Pate de Jujubes—*Jujube Paste, E.*—Take of jujube fruit 500 parts; gum arabic 3,000 parts; white sugar 2,500 parts; orange flower water 192. Boil the jujube in 2,000 parts of water, allow it to deposit, and decant. Dissolve the gum arabic in 4,000 parts of cold water, and strain. Dissolve the sugar in the solution of jujube, and clarify it with the whites of three or four eggs; add then the solution of gum, and evaporate carefully to a soft extract; then add the orange flower-water, and complete the evaporation by a water-bath, and finally in a stove at 104° F.—*Paris Codex.*

Pate de Lichen—*Lichen Paste, P.*—Take of iceland moss 500 parts; gum arabic 2,500 parts; white sugar 2,000 parts. Heat the moss nearly to boiling point in sufficient water, strain, and reject the liquor; then boil the moss in a fresh quantity of water for an hour; strain with pressure; then dissolve the sugar and gum in the decoction, and evaporate with a gentle heat to the proper consistence.—*Paris Codex.*

Pate de Réglisse Brune—*Brown Liquorice Paste, P.*—Take of liquorice juice 96 parts; gum arabic 1,500 parts; white sugar 1,000 parts; water 2,500 parts; extract of opium 1 part. Dissolve the liquorice juice in water, strain, and add the other ingredients, and evaporate to the pruper consistence.—*Paris Codex.*

Pate de Réglisse Noir—*Black Liquorice Paste, P.*—Take of Italian juice 500 parts; gum arabic 1,000 parts; white sugar 500 parts; water 2,000 parts. Dissolve the liquorice in cold water, strained; dissolve the other ingredients in this solution, and then strain again; evaporate carefully to the proper consistence. It may be flavoured by adding 24 drops of oil of aniseed and one drachm of orris powder.—*Paris Codex.*

Mixtures.

Potion Aromatique—*Aromatic Mixture, P.*—Take of syrup of carnation 32 parts; spirit of cinnamon 16 parts; confection of hyacinths 8 parts; peppermint-water 64 parts; orange flower-water 64 parts. Mix.—*Paris Codex.*

Potion Antispasmodique—*Antispasmodic Mixture, P.*—Take of syrup of orange flower 32 parts; lime flower-water 64 parts; orange flower-water 64 parts; sulphuric ether 2 parts. Mix.—*Paris Codex.*

Potion Calmant—*Anodyne Mixture, P.*—Take of syrup of opium 8 parts; syrup of orange flower 24 parts; lettuce-water 125 parts. Mix.—*Paris Codex.*

Potion Gazeuse—*Effervescing Mixture, P.*—Take of syrup of lemons 32 parts; lemon juice 16 parts; water 96 parts; bicarbonate of potash 2 parts. Mix, and cork immediately.

It is sometimes advantageous to give separately the acids and the alkali, so that the effervescence may take place in the stomach itself, for which purpose it is better to prepare the mixture in the following manner:—Take of bicarbonate of potash 2 parts; syrup of lemon peel 16 parts. Mix in one bottle; also lemon juice 16 parts; syrup of lemon 32 parts; water 64 parts. Mix in one bottle. Equal parts of each mixture are taken successively.—*Paris Codex.*

Potion Scillitique—*Diuretic Mixture, P.*—Take of oxymel of squill 16 parts; hyssop-water 96 parts; peppermint-water 32 parts; spirits of nitre 2 parts. Mix.—*Paris Codex.*

Potion avec des Substances Fétides—*Antihysteric Mixture, P.*—Take of compound syrup of mugwort 32 parts; tincture of castor 2 parts; valerian-water 64 parts; orange flower-water 64 parts; sulphuric ether 4 parts. Mix, and closely stop the bottle.—*Paris Codex.*

Soaps.

Savon Amygdalin—*Almond Soap, P.*—Take of caustic solution of soda 1,000 parts; oil of sweet almonds 2,100 parts. Mix the oil and solution of soda carefully together, and keep the mixture for some days in a temperature of about 68° Fahr., agitating from time to time, until it has acquired the consistence of a soft paste; place it then in moulds, and leave it until it has become hard. This soap must not be used for medicinal purposes until it has lost, by one or two months' exposure to the air, the excess of alkali. The success of this preparation depends much upon the purity of the lye employed.—*Paris Codex.*

Savon de Moelle de Bœuf—*Animal Soap, P.*—Take of purified beef-marrow 500 parts; caustic solution of soda 250 parts; water 1,000 parts; chloride of sodium 100 parts. Put the marrow with hot water into a porcelain vessel, and heat until it is melted; then add the caustic solution by degrees, stirring continually; continue until the saponification is complete. Add then salt, assisting its solution by slight stirring; collect the soap which rises to the surface, drain it, melt it with a gentle heat, pour into moulds, and allow it to solidify.—*Paris Codex.*

Savon de Térébenthine—*Soap of Turpentine, P.*—Take of carbonate of potassa 100 parts; oil of turpentine 100 parts; Venice turpentine 100 parts. Triturate the carbonate of potass, in a marble mortar, first with the oil and then with the Venice turpentine; when they are well mixed, grind by small portions at a time until it has acquired the consistence of hard honey, and has become homogeneous. *Paris Codex.*

Spirits.

Alcohol—*Alcohol, L.*—Take of rectified spirit a gallon; chloride of calcium a pound. Put the chloride of calcium into the spirit, and, when it is dissolved, let seven pints and five fluid ounces distil.—*London.*

Alcohol—*Alcohol, E.*—Take of rectified spirit 1 pint; lime 18 ounces. Break down the lime into small fragments; expose the spirit and lime together to a gentle heat in a glass matras, till the lime begins to slake; withdraw the heat till the slaking is finished, preserving the upper part of the matras cool with damp cloths. Then attach a proper refrigeratory, and, with a gradually increasing heat, distil off seventeen fluid ounces. The density of this alcohol should not exceed 796. If higher, the distillation must have been begun before the slaking of the lime was finished.—*Edinburgh.*

Alcool Rectifé—*Rectified Spirit, P.*—Take of spirit of wine any quantity. Distil it gently in a sandbath with an ordinary retort; when two fifths of the quantity employed has distilled over, change the receiver, and continue the distillation until all the alcohol has passed over. The first portion, which constitutes the rectified spirit, should have a sp. gr. of about 850.—*Paris Codex.*

Alcool, A—40 degrees—*Alcohol, P.*—Take of rectified spirit 1,000 parts; acetate of potash, dried, 250 parts. Add the acetate of potash

to the alcohol, and, after twenty-four hours, distil. The sp. gr. of the product should be about 815.—*Paris Codex.*

Alcohol, when pure, is colourless and transparent; its odour is rather pleasant, and its taste is penetrating. It has never been rendered solid by exposure to any degree of cold, either natural or artificial. It is extremely volatile, producing great cold during its evaporation; it is highly inflammable, and, during combustion, water and carbonic acid are generated, the quantity of the former exceeding that of the weight of the alcohol burned. Alcohol of sp. gr. 800 boils at 174°, or 38 below the boiling point of water.

The remarks in the London Pharmacopœia are—"The sp. gr. of alcohol is 815; it is free from colour; when heated it evaporates; it combines with water and with ether; it tastes and smells like wine." In the Ed. Ph.—"Absolute alcohol density 794-6; when mixed with a little solution of nitrate of silver, and exposed to bright light, it remains unchanged, or only a very scanty dark precipitate forms."

Alcohol Dilutum—*Diluted Alcohol, U.S.*—Take of alcohol, distilled water, each, a pint. Mix them.—*United States.*

The sp. gr. of diluted alcohol is .935.

Spiritus Ammoniæ—*Spirit of Ammonia, L.*—Take of hydrochlorate of ammonia 10 ounces; carbonate of potash 16 ounces; rectified spirit, water, each, 3 three pints. Mix them, and let three pints distil.—*London.*

Spiritus Ammoniæ—*Spirit of Ammonia, E.*—Take of rectified spirit 2 pints; fresh-burnt lime 12 ounces; muriate of ammonia, in very fine powder, 8 ounces; water 6½ fluid ounces. Let the lime be slaked with the water in an iron or earthenware vessel, and cover the vessel till the powder be cold; mix the lime and muriate of ammonia quickly and thoroughly in a mortar, and transfer the mixture at once into a glass retort; adapt to the retort a tube which passes nearly to the bottom of a bottle containing the rectified spirit; heat the retort in a sandbath gradually, so long as anything passes over, preserving the bottle cool. The bottle should be large enough to contain one half more than the spirit used.—*Edinburgh.*

Spiritus Ammoniæ—*Spirit of Ammonia, D.*—Take of rectified spirit 3 pints; carbonate of ammonia, rubbed to powder, 3½ ounces. Mix them, and dissolve the salt with a moderate heat; then filter the solution.—*Dublin.*

Spirit of ammonia is a transparent, colourless fluid; its smell is pungent and taste acrid; it turns turmeric paper brown.

Spiritus Ammoniæ—*Spirit of Ammonia, U.S.*—Take of muriate of ammonia, in fine powder, lime, each, a pound; alcohol 20 fluid ounces; water 9 fluid ounces. Slake the lime with the water, mix it with the muriate of ammonia, and proceed in the manner directed for solution of ammonia, the alcohol being introduced into the quart bottle instead of distilled water. When all the ammonia has come over, remove the liquor contained in the quart bottle, and keep it in small bottles well stopped.

One hundred grains of spirit of ammonia saturate about thirty grains of officinal sulphuric acid.—*United States.*

Spiritus Ammoniæ Aromaticus—*Aromatic Spirit of Ammonia, L.*—Take of hydrochlorate of ammonia 5 ounces; carbonate of potash 8 ounces; cinnamon, bruised, cloves, bruised, each, 2 drachms; lemon peel 4 ounces; rectified spirit, water, each, 4 pints. Mix them, and let six pints distil.—*London.*

Spiritus Ammoniæ Aromaticus—*Aromatic Spirit of Ammonia, E.*—Take of spirit of ammonia 8 fluid ounces; volatile oil of lemon peel 1 fluid ounce; volatile oil of rosemary one fluidrachm and a half. Dissolve the oils in the spirit by agitation.—*Edinburgh.*

Spiritus Ammoniæ Aromaticus—*Aromatic Spirit of Ammonia, D.*—Take of spirit of ammonia 2 pints; essential oil of lemons 2 drachms; nutmegs, bruised, half an ounce; macerated cinnamon bark, bruised, 3 drachms; in a covered vessel for three days, frequently shaking the vessel; then distil a pound and a half.—*Dublin.*

Spiritus Ammoniæ Aromaticus—*Aromatic Spirit of Ammonia, U.S.*—Take of muriate of ammonia 5 ounces; carbonate of potash 5 ounces; cinnamon, bruised, cloves, bruised, each, 2 drachms; lemon peel 4 ounces; alcohol, water, each, 5 pints. Mix them, and distil seven pints and a half.—*United States.*

Alcoolat Aromatique—*Ammoniacal Aromatic Spirits of Ammonia, P.*—Take of orange peel, fresh, 96 parts; lemon peel 96 parts; vanilla 32 parts; cinnamon 16 parts; cloves 8 parts; hydrochlorate of ammonia 500 parts; carbonate of potash 500 parts; cinnamon water 500 parts; rectified spirit 500 parts. Bruise the dry ingredients, and mix them in a glass retort with the ammonia, spirit, and cinnamon-water; allow them to macerate for some time, agitating occasionally, then add the carbonate of potash, and, after some hours, distil gently 500 parts.—*Paris Codex.*

The spirits of ammonia are incompatible with acids, acidulous salts, earthy and metallic salts, and lime-water.

Spiritus Ammoniæ Fœtidus—*Fetid Spirit of Ammonia, L.*—Take of hydrochlorate of ammonia 10 ounces; carbonate of potash 16 ounces; rectified spirit, water, each 3 pints; asafœtida 5 ounces. Mix them; then, with a slow fire, let three pints distil.—*London.*

Spiritus Ammoniæ Fœtidus—*Fetid Spirit of Ammonia, E.*—Take of spirit of ammonia 10½ fluid ounces; asafœtida half an ounce. Break the asafœtida into small fragments, digest it in the spirit for twelve hours, and distil over ten fluid ounces and a half by means of a vapour-bath heat.—*Edinburgh.*

Spiritus Ammoniæ Fœtidus—*Fetid Spirit of Ammonia, D.*—Take of spirit of ammonia 2 pints; asafœtida one ounce and a quarter. Macerate for three days in a covered vessel with frequent agitation; then, by a gentle fire, distil one pint and a half into a cold receiver.—*Dublin.*

In these processes the fetid volatile oil of the gum resin is dissolved in the spirit of ammonia, and its odour and flavour communicated to it; but very little else is taken up. It gets dark when kept long.

Spiritus Anisi—*Spirit of Anise, L.*—Take of anise, bruised, 10 ounces; proof spirit a gallon; water 2 pints. Mix them; then, with a slow fire, let a gallon distil.—*London.*

Spiritus Anisi Compositus—*Compound Spirit of Anise-seed, D.*—Take of anise-seed, bruised, angelica-seeds, bruised, of each half a pound; proof spirit a gallon; water sufficient to prevent empyreuma. Distil one gallon.—*Dublin.*

Spiritus Armoraciæ Compositus—*Compound Spirit of Horse-radish, L.*—Take of horseradish, sliced, orange-peel, dried, each, 20 ounces; nutmegs, bruised, 5 drachms; proof spirit a gallon; water 2 pints. Mix them; then, with a slow fire, let a gallon distil.—*London.*

Spiritus Carui—*Spirit of Caraway, L.*—Take of caraway, bruised, 22 ounces; proof spirit a gallon; water 2 pints. Mix them; then, with a slow fire, let a gallon distil.—*London.*

Spiritus Carui—*Spirit of Caraway, E.*—Take of caraway, bruised, half a pound; proof spirit 7 pints. Macerate for two days in a covered vessel; add a pint and a half of water; and distil off seven pints.—*Edinburgh.*

Spiritus Carui—*Spirit of Caraway, D.*—Take of caraway, bruised, a pound; proof spirit a gallon; water 2 pints. Mix; then distil a gallon by a gentle fire.—*Dublin.*

Spiritus Cinnamomi—*Spirit of Cinnamon, L.*—Take of oil of cinnamon 2 drachms; proof spirit a gallon; water a pint. Mix them; then, with a slow fire, let a gallon distil.—*London.*

Spiritus Cinnamomi—*Spirit of Cinnamon, E. and D.*—Take of cinnamon, in coarse powder, 1 pound. Proceed as for the spirit of caraway.—*Edinburgh and Dublin.*

Spiritus Cassiæ—*Spirit of Cassia, E.*—Take of cassia, in coarse powder, 1 pound. Proceed as for the spirit of caraway.—*Edinburgh.*

Alcoolat de Cannelle—*Spirit of Cinnamon, P.*—Take of cinnamon 500 parts; rectified spirit 4,000 parts. Coarsely bruise the cinnamon, allow it to macerate in the alcohol for four days, and distil with the heat of a water-bath, until a quantity is obtained equal to the spirit employed.—*Paris Codex.*

In this manner prepare—

Alcoolat de Girofles—*Spirit of Cloves, P.*

Alcoolat de Muscades—*Spirit of Nutmegs, P.*

Alcoolat de Sassafras—*Spirit of Sassafras, P.*

Alcoolat de Calamus Aromaticus—*Spirit of Sweet Flag, P.*

Alcoolat de Cochléaria—*Spirit of Scurvy-grass, P.*—Take of fresh leaves of scurvy-grass 4,500 parts; rectified spirit 3,000 parts. Distil in a water-bath until 2,500 parts are obtained.—*Paris Codex.*

Alcoolat de Cochléaria Composé—*Compound Spirit of Scurvy-grass, P.*—Take of fresh leaves of scurvy-grass 2,500 parts; horseradish-root, sliced, 320 parts; rectified spirit 3,000 parts. Distil in a water-bath until 2,500 parts are obtained.—*Paris Codex.*

Eau de Cologne, *P.*—Take of essence of bergamot 96 parts; oil of lemon 96 parts; oil of cedrat 96 parts; oil of rosemary 96 parts; oil of neroli 48 parts; oil of lavender 48 parts; oil of cinnamon 24 parts; alcohol 12,000 parts; compound spirit of mint 1,500 parts; spirit of rosemary 1,000 parts. Dissolve the essences in the spirit, and allow it to remain for eight days; then distil with a water-bath four fifths of the mixture.—*Paris Codex.*

Spiritus Juniperi Compositus—*Compound Spirit of Juniper, L. and D.*—Take of juniper fruit, bruised, 15 ounces; caraway, bruised, fennel, bruised, each, 2 ounces; proof spirit a gallon; water 2 pints. Mix them; then, with a slow fire, let a gallon distil.—*London and Dublin.*

Spiritus Juniperi Compositus—*Compound Spirit of Juniper, E.*—Take of juniper berries, bruised, a pound; fennel, bruised, and caraway, bruised, of each an ounce and a half; proof spirit 7 pints; water 2 pints. Macerate the fruits in the spirit for two days; add the water, and distil off 7 pints.—*Edinburgh.*

Spiritus Juniperi Compositus—*Compound Spirit of Juniper, U.S.*—Take of juniper, bruised, a pound; caraway, bruised, fennel

seed, bruised, each, an ounce and a half; diluted alcohol a gallon; water 2 pints. Macerate the juniper, caraway, and fennel seeds, in the diluted alcohol, for twenty-four hours, then add the water, and with a slow fire distil a gallon.—*United States.*

SPIRITUS LAVANDULÆ—*Spirit of Lavender, L.*—Take of lavender fresh, 2½ pounds; rectified spirit a gallon; water 2 pints. Mix them then with a slow fire let a gallon distil.—*London.*

SPIRITUS LAVANDULÆ—*Spirit of Lavender, E.*—Take of lavender, fresh, 2½ pounds; rectified spirit a gallon. Mix them, and with the heat of a vapour-bath distil over seven pints.—*Edinburgh.*

SPIRITUS LAVANDULÆ—*Spirit of Lavender, D.*—Take of fresh flowers of lavender 2 pounds; proof spirit a gallon; water sufficient to prevent empyreuma. Distil five pints by a moderate fire.—*Dublin.*

SPIRITUS LAVANDULÆ—*Spirit of Lavender, U.S.*—Take of fresh lavender 2 pounds; alcohol a gallon; water 2 pints. Mix them, and with a slow fire distil a gallon.—*United States.*

SPIRITUS LAVANDULÆ COMPOSITUS—*Compound Spirit of Lavender, E. and D.*—Take of spirit of lavender 2 pints; spirit of rosemary 12 fluid ounces; cinnamon, in coarse powder, 1 ounce; cloves, bruised, 2 drachms; nutmeg, bruised, half an ounce; red sandal-wood, in shavings, 3 drachms. Let the whole macerate for seven days, and then strain the liquor through calico.—*Edinburgh and Dublin.*

SPIRITUS LAVANDULÆ COMPOSITUS—*Compound Spirit of Lavender, U.S.*—Take of spirit of lavender 3 pints; spirit of rosemary a pint; cinnamon, bruised, an ounce; cloves, bruised, 2 drachms; nutmeg, bruised, half an ounce; red saunder, rasped, 3 drachms. Macerate for fourteen days, and filter through paper.—*United States.*

SPIRITUS MENTHÆ PIPERITÆ—*Spirit of Peppermint, L.*—Take of oil of peppermint 3 drachms; proof spirit a gallon; water a pint. Mix them; then with a slow fire let a gallon distil.—*London.*

SPIRITUS MENTHÆ—*Spirit of Peppermint, E.*—Take of peppermint, fresh, one pound and a half. Proceed as for spirit of caraway.—*Edinburgh.*

SPIRITUS MENTHÆ VIRIDIS—*Spirit of Spearmint, L.*—Take of oil of spearmint 3 drachms; proof spirit a gallon; water a pint. Mix them; then with a slow fire let a gallon distil.—*London.*

SPIRITUS MENTHÆ PULEGII—*Spirit of Pennyroyal, L.*—Take of oil of pennyroyal 3 drachms; proof spirit a gallon; water a pint. Mix them; then with a slow fire let a gallon distil.—*London.*

SPIRITUS MYRISTICÆ—*Spirit of Nutmeg, L. and D.*—Take of nutmegs, bruised, 2½ ounces; proof spirit a gallon; water a pint. Mix them; then with a slow fire let a gallon distil.—*London and Dublin.*

SPIRITUS MYRISTICÆ—*Spirit of Nutmeg, E.*—Take of bruised nutmeg 2½ ounces; proof spirit a gallon; water 1 pint. Mix them together, and distil over one gallon.—*Edinburgh.*

SPIRITUS MYRISTICÆ—*Spirit of Nutmeg, U.S.*—Take of nutmeg, bruised, 2 ounces; diluted alcohol a gallon; water a pint. Mix them, and with a slow fire distil a gallon.—*United States.*

SPIRITUS PIMENTÆ—*Spirit of Pimenta, L.*—Take of pimenta, bruised, 2½ ounces; proof spirit a gallon; water a pint. Mix them; then with a slow fire let a gallon distil.—*London.*

SPIRITUS PIMENTÆ—*Spirit of Pimento, E.*—Take of pimento, bruised, half a pound. Proceed as for the spirit of caraway.—*Edinburgh.*

SPIRITUS PIMENTÆ—*Spirit of Pimento, U.S.*—Take of pimento, bruised, 2 ounces; diluted alcohol a gallon; water a pint. Macerate the pimento in the diluted alcohol for twenty-four hours; then add the water, and with a slow fire distil a gallon.—*United States.*

SPIRITUS ROSMARINI—*Spirit of Rosemary, L.*—Take of oil of rosemary 2 drachms; rectified spirit a gallon; water a pint. Mix them; then with a slow fire let a gallon distil.—*London.*

SPIRITUS ROSMARINI—*Spirit of Rosemary, E.*—Take of rosemary 2½ pounds. Proceed as for the spirit of lavender.—*Edinburgh.*

SPIRITUS ROSMARINI—*Spirit of Rosemary, D.*—Take of fresh rosemary tops a pound and a half; proof spirit a gallon. Distil five pints by a moderate fire.—*Dublin.*

SPIRITUS ROSMARINI—*Spirit of Rosemary, U.S.*—Take of oil of rosemary 2 drachms; alcohol a gallon; water a pint. Mix them, and with a slow fire distil a gallon.—*United States.*

ALCOOLAT DE ROMARIN—*Spirit of Rosemary, P.*—Take of fresh rosemary tops 1,000 parts; rectified spirit 3,000 parts; distilled rosemary water 1,000 parts. Macerate for four days, and distil by a water-bath until you have obtained 250 parts.—*Paris Codex.*

SPIRITUS TENUOR—*Proof Spirit, E.*—Take of rectified spirit 2 pints; distilled water 1 pint. Mix them. The density of this product should be 912.—*Edinburgh.*

SPONGE.

SPONGIA USTA—*Burnt Sponge, U.S.*—Take of sponge a convenient quantity. Cut it into pieces and beat it, that any extraneous matter may be separated; then burn it in a close iron vessel until it becomes black and friable; lastly, rub it into very fine powder.—*United States.*

SYRUPS.

SYRUPUS—*Syrup, L.*—Take of sugar 10 pounds; water 3 pints. Dissolve the sugar in the water with a gentle heat.—*London.*

SYRUPUS SIMPLEX—*Simple Syrup, E.*—Take of pure sugar 10 pounds; boiling water 3 pints. Dissolve the sugar in the water with the aid of a gentle heat.—*Edinburgh.*

SYRUPI—*Syrups, D.*—In making syrups, for which neither the weight of the sugar nor the mode of dissolving it is specified, the following rule is to be observed:—Take of refined sugar, reduced to a fine powder, 29 ounces; the liquor prescribed 1 pint. Add the sugar by degrees, and digest with a moderate heat, in a close vessel, until it is dissolved, frequently stirring it; set the solution aside for twenty-four hours, take off the scum, and pour off the syrup from the feces, if there be any.—*Dublin.*

SYRUPUS—*Syrup, U.S.*—Take of sugar 2½ pounds; water a pint. Dissolve the sugar in the water with the aid of heat, remove any scum which may form, and strain the solution while hot.—*United States.*

SIROP SIMPLE—*Simple Syrup, P.*—Take of pure sugar 600 parts; water sufficient; whites of two eggs. Beat the albumen with 3,000 parts of water, and add two thirds of the mixture to the sugar in a copper vessel, together with 1,000 parts of water; heat over a gentle fire until the sugar is dissolved, stirring from time to time, and taking care that it does not boil before the solution is complete; when it froths up damp the fire, and add by degrees the solution of albumen in reserve, remove the scum from time to time, and evaporate until it has the sp. gr. of 1260 while boiling.—*Paris Codex.*

SIROP SIMPLE BLANC—*Colourless Simple Syrup, P.*—Take of finest white sugar 1,000 parts; pure water 500 parts; prepared animal charcoal 64 parts. Dissolve the sugar in the cold water, add the charcoal, and after twelve hours filter the syrup through paper.—*Paris Codex.*

Syrups whose density is not precisely determined by the process should have the specific gravity 1.261 when boiling, and about 1.340 at ordinary temperatures. They should be preserved in a place the temperature of which never exceeds 55°.

SIROP D'ABSINTHE—*Syrup of Wormwood, P.*—Take of wormwood tops, dried, 64 parts; boiling water 500 parts; sugar 1,000 parts. Macerate the wormwood in the boiling water for twelve hours; strain with pressure; filter the liquor; and add twice its weight of sugar; dissolve with a gentle heat.—*Paris Codex.*

In the same manner prepare

SIROP D'ARMOISE—*Syrup of Mugwort, P.*

SYRUPUS ACETI—*Syrup of Vinegar, E.*—Take of vinegar, French in preference, 11 fluid ounces; pure sugar 14 ounces. Boil them together.—*Edinburgh.*

This syrup is very liable to undergo decomposition: it should, therefore, be made in small quantities at a time.

SIROP D'ACETATE DE MORPHINE—*Syrup of Acetate of Morphine, P.*—Take of acetate of morphine 4 grains; colourless simple syrup a pound. Dissolve the morphine in a very little water slightly acidulated with acetic acid, and mix with the syrup.—*Paris Codex.*

In the same manner prepare

SIROP DE SULPHATE DE MORPHINE—*Syrop of Sulphate of Morphine, P.*

SIROP D'ACIDE HYDROCYANIQUE—*Syrup of Hydrocyanic Acid, P.*—Take of colourless simple syrup 500 parts; medicinal hydrocyanic acid 4 parts. Mix carefully, and preserve in well-stopped bottles.—*Paris Codex.*

SIROP D'ACIDE TARTRIQUE—*Syrup of Tartaric Acid, P.*—Take of tartaric acid 10 parts; distilled water 20 parts; colourless simple syrup 500 parts. Dissolve the acid in the water, and add the solution to the syrup while boiling.—*Paris Codex.*

In the same manner prepare

SIROP D'ACIDE CITRIQUE—*Syrup of Citric Acid, P.*

SYRUPUS ALLII—*Syrup of Garlic, U.S.*—Take of fresh garlic, sliced, 6 ounces; distilled vinegar a pint; sugar 2 pounds. Macerate the garlic in the vinegar, in a glass vessel, for four days; then express the liquor, and set it by, that the dregs may subside; lastly, add the sugar to the clear liquor, and proceed in the manner directed for syrup.—*United States.*

SYRUPUS ALTHÆÆ—*Syrup of Marshmallow, L. and D.*—Take of marshmallow-root, bruised, 8 ounces; sugar 2½ pounds; water 4 pints.

Boil down the water with the root to half, and press out the cooled liquor. Set it by for twenty-four hours, that the dregs may subside; then pour off the liquor, and, the sugar being added, boil down to a proper consistence.—*London and Dublin.*

Syrupus Althææ—*Syrup of Marshmallow, E.*—Take of althæa-root, fresh and sliced, 8 ounces; boiling water 4 pints; pure sugar 2½ pounds. Boil the althæa-root with the water down to two pints; strain and express strongly through calico; let the impurities subside; and dissolve the sugar in the clear liquor with the aid of heat.—*Edinburgh.*

This syrup very soon decomposes.

Syrupus Aurantii—*Syrup of Orange-peel, L.*—Take of orange-peel, fresh, 2½ ounces; water, boiling, a pint; sugar 3 pounds. Macerate the peel in the water for twelve hours in a vessel lightly covered, then pour off the liquor, and add the sugar to it.—*London.*

Syrupus Aurantii—*Syrup of Orange-peel, E.*—Take of fresh bitter orange-peel 2½ ounces; boiling water 1 pint; pure sugar 3 pounds. Infuse the peel in the water for twelve hours in a covered vessel, pour off the liquor, and filter it if necessary; add the sugar to the liquor, and dissolve it with the aid of heat.—*Edinburgh.*

Syrupus Aurantii—*Syrup of Orange-peel, D.*—Take of fresh peel of Seville oranges 8 ounces; boiling water 6 pints. Macerate for twelve hours in a covered vessel, and dissolve as much sugar in the filtered liquor as will form a syrup.—*Dublin.*

Syrupus Aurantii Corticis—*Syrup of Orange-peel, U.S.*—Take of orange-peel, bruised, 2 ounces; boiling water a pint; sugar 2½ pounds. Macerate the orange-peel in the water, in a covered vessel, for twelve hours, and strain; then add the sugar, and proceed in the manner directed for syrup.—*United States.*

Sirop d'Ecorces d'Oranges—*Syrup of Orange-peel, P.*—Take of fresh orange-peel 96 parts; boiling water 500 parts; sugar Q.S. Macerate the orange-peel in the water for twenty-four hours; strain, and dissolve in the clear liquor twice its weight of sugar.—*Paris Codex.*

In the same manner prepare

Sirop d'Ecorces de Citrons—*Syrup of Lemon-peel, P.*

Sirop d'Ecorces d'Oranges Amères—*Syrup of Bitter Orange-peel, P.*—Take of bitter orange-peel, dried, 96 parts; boiling water 692 parts; white sugar 1,000 parts. Macerate the orange-peel in the water for twenty-four hours; strain with pressure, filter, and dissolve in the liquor with a gentle heat twice its weight of sugar.—*Paris Codex.*

Syrupus Amygdalæ—*Syrup of Almonds (Syrup of Orgeat), U.S.*—Take of sweet almonds a pound; bitter almonds 4 ounces; water 3 pints; sugar 6 pounds. Having blanched the almonds, rub them in a mortar to a very fine paste, adding, during the trituration, three fluid ounces of the water and a pound of the sugar. Mix the paste thoroughly with the remainder of the water, strain with strong expression, add the remainder of the sugar to the strained liquor, and dissolve it with the aid of a gentle heat. Strain the syrup through fine linen, and, having allowed it to cool, put it into bottles, which must be well stopped and kept in a cool place.—*United States.*

Sirop d'Amandes—*Syrup of Almonds (Syrup of Orgeat), P.*—Take of sweet almonds 500 parts; bitter almonds 160 parts; white sugar 3,000 parts; water 1,625 parts; orange-flower-water 250 parts. Blanch the almonds and beat them in a mortar to a fine paste, adding, during the trituration, a sixth part of the sugar and a little water. Mix the paste thoroughly with the rest of the water; strain with strong expression; add the rest of the sugar to the strained emulsion, and dissolve with a very gentle heat; when the sugar has dissolved, add the orange-flower-water; strain the syrup through fine linen, and having allowed it to cool put it into bottles, which must be well stopped and kept in a cool place.—*Paris Codex.*

Sirop d'Armoise Composé—*Compound Syrup of Mugwort, P.*—Take of the fresh tops of mugwort 192 parts; fresh root of elecampane 16 parts; lovage-root 16 parts; fennel-root 16 parts; fresh tops of pennyroyal 192 parts; fresh tops of cat-mint 192 parts; fresh tops of savine 192 parts; fresh tops of marjoram 112 parts; fresh tops of hyssop 112 parts; fresh tops of motherwort 112 parts; fresh tops of rue 112 parts; fresh tops of sweet basil 112 parts; aniseed 36 parts; cinnamon 36 parts; white honey 1,000 parts; sugar 2,500 parts. Dissolve the honey in 8,000 parts of water, add all the herbs, and macerate for three days in a warm place; distil then, by means of a water-bath, 250 parts; in this aromatic liquor dissolve 500 parts of sugar. Also, strain with pressure what remains in the retort, and allow it to deposit; to this add the rest of the sugar and make a syrup, which clarify with the white of eggs; when it is half cold, add the aromatic syrup, prepared first, and mix.—*Paris Codex.*

Sirop de Belladone—*Syrup of Belladonna, P.*—Take of extract of belladonna 2 parts; water 16 parts; simple syrup 500 parts. Dissolve the extract in the water, and add the solution to the syrup made hot; boil for a short time, and strain.—*Paris Codex.*

In the same manner prepare

Sirop de Jusquiame—*Syrup of Henbane, P.*

Sirop de Stramonium—*Syrup of Thornapple, P.*

Syrupus Croci—*Syrup of Saffron, L.*—Take of saffron 10 drachms; water, boiling, a pint; sugar 3 pounds. Macerate the saffron in the water for twelve hours in a vessel lightly covered; then strain the liquor, and add the sugar to it.—*London.*

Syrupus Croci—*Syrup of Saffron, E.*—Take of saffron 10 drachms; boiling water 1 pint; sugar 3 pounds. Proceed as for the syrup of orange-peel.—*Edinburgh.*

Sirop de Safran—*Syrup of Saffron, P.*—Take of saffron 32 parts; Malaga wine 500 parts; white sugar 750 parts. Macerate the saffron in the wine for two days, press and strain, add the sugar to the clear liquor, and dissolve with a gentle heat.—*Paris Codex.*

Sirop de Cinq Racines—*Syrup of Five Roots, P.*—Take of the dried root of celery 125 parts; dried root of fennel 125 parts; dried root of parsley 125 parts; dried root of asparagus 125 parts; dried root of ruscus 125 parts; simple syrup 3,750 parts. Slice the roots, and infuse them in 2,250 parts of water for about twelve hours; then strain without pressure, and preserve the liquor in a cool place; make a second infusion of the roots in 4,000 parts of water; strain with slight pressure; decant the liquor, and mix it with the syrup, which must be evaporated until it has lost in weight equal to the first infusion, which is then to be added quickly; strain.—*Paris Codex.*

Sirop de Digitale—*Syrup of Foxglove, P.*—Take of foxglove-leaves 11 parts; boiling water 500 parts; white sugar 1,000 parts. Infuse the foxglove in the water for six hours; strain; add to the clear liquor double its weight of sugar, and dissolve with a gentle heat.—*Paris Codex.*

Sirop de Douce Amères—*Syrup of Bitter-sweet, P.*—Take of dried stalks of bitter-sweet 500 parts; simple syrup 4,000 parts. Infuse the bitter-sweet for twelve hours in 1,250 parts of water; strain with pressure; weigh the liquor, and set aside; infuse the residue in 1,500 parts of water; strain, and mix this second liquor with the simple syrup. Proceed then as ordered for the syrup of Corsican moss.—*Paris Codex.*

Sirop d'Erysimum Composé—*Compound Syrup of Hedge Mustard, P.*—Take of barley 64 parts; raisins 64 parts; liquorice-root 64 parts; dried leaves of borage 96 parts; dried leaves of wild succory 96 parts; fresh hedge-mustard 1,500 parts; elecampane-root 125 parts; Canada maiden-hair 32 parts; dried tops of rosemary 16 parts; French lavender 16 parts; aniseed 24 parts; sugar 2,000 parts; white honey 500 parts. Boil the barley, raisins, liquorice-root, borage-leaves, and wild succory in 6,000 parts of water, and pour the boiling decoction over the other ingredients, conveniently divided; infuse for twenty-four hours, and distil 250 parts of aromatic liquor, in which dissolve, in a covered vessel, 500 parts of sugar. Also, press and strain what remains in the retort; allow it to deposit; and then add the rest of the sugar and the honey, make a syrup, clarify, and, when half cold, add the aromatic syrup, prepared before, and mix.—*Paris Codex.*

Sirop d'Ether—*Syrup of Ether, P.*—Take of colourless simple syrup 500 parts; sulphuric ether 32 parts. Mix thoroughly; allow the mixture to rest for some time; draw off the clear syrup, and preserve carefully.—*Paris Codex.*

Sirop de Fleurs d'Oranger—*Syrup of Orange-flowers, P.*—Take of orange-flower-water 500 parts; finest sugar 1,000 parts. Dissolve the sugar in the water with heat, and filter.—*Paris Codex.*

In the same manner prepare

Sirop de Cannelle—*Syrup of Cinnamon, P.*
" Roses " *Roses, P.*
" Menthe Poivrée " *Peppermint, P.*
" Laitue " *Lettuce, P.*

Sirop de Foie de Soufre—*Syrup of Liver of Sulphur, P.*—Take of sulphuret of potassium 1 part; distilled water 2 parts; simple syrup 82 parts. Dissolve the liver of sulphur in the distilled water, and mix the solution with the syrup.—*Paris Codex.*

This syrup quickly spoils, and should, therefore, only be prepared as required.

Sirop de Fumeterre—*Syrup of Fumitory, P.*—Take of clarified juice of fumitory 1,000 parts; white sugar 1,000 parts. Dissolve, and boil to the consistence of a syrup.—*Paris Codex.*

In the same manner prepare

Sirop de Trèfle d'Eau—*Syrup of Marsh Trefoil, P.*
" Ortie—*Common Nettle, P.*
" Roses Palês—*Hundred-leaved Rose, P.*
" Nerprun—*Buckthorn, P.*

Sirop de Gentiane—*Syrup of Gentian, P.*—Take of dried gen-

tian-root 48 parts; boiling water 564 parts; white sugar 1,000 parts. Infuse the gentian-root in the boiling water; strain with pressure; filter the liquor, and dissolve in it the sugar with a gentle heat.—*Paris Codex.*

Sirop de Gomme—*Syrup of Gum, P.*—Take of white gum arabic 500 parts; cold water 500 parts; simple syrup 4,000 parts. Remove all possible dirt from the gum by gently washing, and macerate in the prescribed quantity of water, stirring occasionally to facilitate the solution; strain; mix with the syrup, and boil until it has the sp. gr. 1250 while boiling.—*Paris Codex.*

Sirop d'Hysope—*Syrup of Hyssop, P.*—Take of dried tops of hyssop 32 parts; hyssop water 1,000 parts; white sugar 2,000 parts. Digest the hyssop with the hyssop-water for two hours in a covered vessel in the heat of a water-bath, allow it to cool, express, and filter; add to the clear liquor double its weight of sugar, and dissolve with a gentle heat in a covered vessel.—*Paris Codex.*

In the same manner prepare

Sirop de Menthe Crepue	"	*Syrup of Curl-leaved Mint, P.*
" Marrube	"	*Horehound, P.*
" Scordium	"	*Water Germander, P.*
" Lierre Terrestre	"	*Ground Ivy, P.*
" Stæchas	"	*French Lavender, P.*
" Dictame	"	*Dittany of Crete, P.*
Sirop d'Ache	"	*Lovage, P.*
Sirop de Myrte	"	*Myrtle, P.*

Syrupus Ipecacuanhæ—*Syrup of Ipecacuanha, E.*—Take of ipecacuan, in coarse powder, 4 ounces; rectified spirit 1 pint; proof spirit and water, of each, 14 fluid ounces; syrup 7 pints. Digest the ipecacuan in fifteen fluid ounces of the rectified spirit at a gentle heat for twenty-four hours; strain, squeeze the residuum, and filter. Repeat this process with the residuum and proof spirit; and again with the water. Unite the fluids, and distil off the spirit till the residuum amount to twelve ounces; add to the residuum five fluid ounces of the rectified spirit, and then the syrup.—*Edinburgh.*

Syrupus Ipecacuanhæ—*Syrup of Ipecacuanha, U.S.*—Take of ipecacuanha, in coarse powder, an ounce; diluted alcohol a pint; syrup 2 pints. Macerate the ipecacuanha in the alcohol for fourteen days, and filter. Evaporate the filtered liquor to two fluid ounces, and again filter; then mix it with the syrup, and evaporate by means of a water-bath to the proper consistence. Syrup of ipecacuanha may also be prepared by putting the ipecacuanha, previously moistened with diluted alcohol, into an apparatus for displacement; pouring upon it gradually diluted alcohol until a pint of the filtered liquid is obtained; then evaporate to two fluid ounces, and completing the proce-s as above described.—*United States.*

Sirop d'Ipécacuanha—*Syrup of Ipecacuanha, P.*—Take of alcoholic extract of ipecacuanha 32 parts; water 250 parts; simple syrup 4,500 parts. Dissolve the extract in the water; filter; heat the syrup to boiling, and then add the solution; evaporate to the proper consistence.—*Paris Codex.*

Sirop d'Ipécacuanha Composé—*Compound Syrup of Ipecacuanha, P.*—Take of ipecacuanha-root 32 parts; senna leaves 96 parts; dried tops of wild thyme 32 parts; dried petals of red poppy 125 parts; sulphate of magnesia 96 parts; white wine 750 parts; orange-flower-water 750 parts; white sugar Q.S. Macerate the ipecacuanha and senna in the white wine for twelve hours; strain with pressure, and filter. Put the residue into a water-bath with the red poppies, wild thyme, and sulphate of magnesia, and add to them 3,000 parts of boiling water; infuse for twelve hours; strain with pressure; mix this product with the vinous solution and the orange-flower-water; add to the mixture double its weight of sugar, and dissolve with a gentle heat.—*Paris Codex.*

Syrupus Krameriæ—*Syrup of Rhatany, U.S.*—Take of extract of rhatany 2 ounces; water a pint; sugar 2½ pounds. Dissolve the extract in the water, and filter; then add the sugar, and proceed in the manner directed for syrup.—*United States.*

Syrupus Limonum—*Syrup of Lemons, L.*—Take of the juice of lemons, strained, a pint; sugar 2½ pounds. Dissolve the sugar in the juice of lemons, with a gentle heat; then set it aside for twenty-four hours; afterwards remove the scum, and, if there be any dregs, pour the clear liquor from them.—*London.*

Syrupus Limonum—*Syrup of Lemon-juice, E.*—Take of lemon-juice, freed of impurities by subsidence and filtration, a pint; sugar 2½ pounds. Dissolve the sugar in the lemon-juice with the aid of a gentle heat, and after twenty-four hours' rest remove the scum, and pour the clear liquor from the dregs.—*Edinburgh.*

Syrupus Limonis—*Syrup of Lemon, D.*—Take of expressed lemon-juice 2 pints. As soon as the feces have subsided put it into a matras, and immerse it in boiling water for a quarter of an hour; when cold strain it through a sieve and make it into a syrup.—*Dublin.*

This syrup must not be used in any prescription that contains alkalis, alkaline earths, or their carbonates.

Sirupus Mori—*Syrup of Mulberry, L.*—Take of the juice of mulberries, strained, a pint; sugar 2½ pounds. Dissolve the sugar in the juice of mulberries with a gentle heat, and proceed in the same manner as directed for syrup of lemons.—*London.*

Sirop de Mousse de Corse—*Syrup of Corsican Moss, P.*—Take of Corsican moss 500 parts; simple syrup 3,000 parts. Carefully clean the moss and macerate it in 1,000 parts of tepid water; after twenty-four hours press strongly and strain; filter the liquor and weigh it; macerate the residue in 1,000 parts of tepid water; press and filter as before. Mix with this liquor the syrup, and reduce by evaporation to the weight of the syrup employed, less the weight of the first liquor, which is to be added last of all; strain.—*Paris Codex.*

Sirop d'Extrait d'Opium—*Syrup of Extract of Opium, P.*—Take of extract of opium 1 part; water 16 parts; simple syrup 500 parts. Dissolve the opium in the water; filter the solution, and add it to the syrup heated to boiling; strain.—*Paris Codex.*

Syrupus Papaveris—*Syrup of Poppy, L.*—Take of poppy (capsules) 3 pounds; sugar 5 pounds; water, boiling, 5 gallons. Boil down the capsules in the water to two gallons, and press strongly. Again boil down the strained liquor to four pints, and strain while hot. Set it by for twelve hours, that the dregs may subside; then boil down the clear liquor to two pints; add the sugar, and dissolve it.—*London.*

Syrupus Papaveris—*Syrup of Poppy, E.*—Take of poppy heads, without the seeds, one pound and a half; boiling water 15 pints; pure sugar 3 pounds. Slice the poppy heads, infuse them in the water for twelve hours, boil down to five pints, strain, and express strongly through calico; boil down again to two pints and a half; then add the sugar, and dissolve it with the aid of heat.—*Edinburgh.*

Syrupus Papaveris Somniferi—*Syrup of White Poppies, D.*—Take of the capsules of the white poppy, gathered before they are ripe, dried, and freed from the seeds, 17 ounces; boiling water 2 gallons. Slice and bruise the capsules, then pour over them the water, and macerate for twenty-four hours; express the liquor, and evaporate it by a gentle heat to two pints, and strain while it is hot. Set it aside for twelve hours, that the feces may subside; finally, add sugar to the clear liquor, that it may make a syrup.—*Dublin.*

Sirop de Pavot Blanc—*Syrup of White Poppy, P.*—Take of alcoholic extract of poppy 16 parts; water 125 parts; simple syrup 1,500 parts. Dissolve the extract in the water, filter the solution, add it to the syrup made to boil, and evaporate to the proper consistence.—*Paris Codex.*

Sirop de Pointes d'Asperges—*Syrup of Asparagus, P.*—Take of clarified juice of asparagus 500 parts; white sugar 1,000 parts. Dissolve with a gentle heat.—*Paris Codex.*

In the same manner prepare

Sirop de Cresson	—*Syrup of Cress, P.*	
" Cochléaria	—*Syrup of Scurvygrass, P.*	
" Cerfeuil	—*Syrup of Garden Chervil, P.*	
" Chou Rouge	—*Syrup of Red Cabbage, P.*	
" Fleurs de Pechêr	—*Syrup of Peach Blossom, P.*	
" Bourrache	—*Syrup of Borage, P.*	

Sirop de Quinquina—*Syrup of Bark, P.*—Take of cinchona bark 96 parts; water 1,000 parts; white sugar 500 parts. Boil the cinchona bark in the water, in a covered vessel, for half an hour; strain; evaporate to one half, add the sugar to form a syrup, and when cold filter.—*Paris Codex.*

Sirop de Quinquina au Vin—*Vinous Syrup of Bark, P.*—Take of soft extract of cinchona bark 28 parts; white wine 500 parts; white sugar 750 parts. Dissolve the extract of bark in the wine; filter the solution; add to it the sugar, and make into a syrup.—*Paris Codex.*

Sirop de Raifort Composé—*Compound Syrup of Horseradish, P.*—Take of fresh leaves of scurvygrass 500 parts; watercress 500 parts; leaves of marsh trefoil 500 parts; horseradish-root 500 parts; Seville oranges 500 parts; cinnamon 16 parts; white wine 2,000 parts; sugar 2,000 parts. Slice the plants and the bitter oranges; bruise the cinnamon; put all the ingredients into a retort, add the wine, and, after macerating two days, distil with a water-bath 500 parts, in which dissolve half the sugar prescribed. Strain with pressure the residue in the retort; allow the liquor to deposit, add to it the rest of the sugar, form into a syrup, which clarify with the white of eggs; when it is nearly cold add to it the other preparation.—*Paris Codex.*

Sirop de Ratanhia—*Syrup of Rhatany, P.*—Take of extract of rhatany 16 parts; water 125 parts; simple syrup 500 parts. Dissolve

the extract in the water and filter the solution; boil the syrup, and, when it has lost a quarter of its weight, add the solution of the extract.—*Paris Codex.*

Syrupus Rhamni—*Syrup of Buckthorn, L.*—Take of the juice of buckthorn, fresh, 4 pints; ginger, sliced, pimento, powdered, each, 6 drachms; sugar 4 pounds. Set by the juice for three days, that the dregs may subside, and strain. To a pint of the clear juice add the ginger and pimento; then macerate with a gentle heat for four hours, and strain; boil down what is left to the measure of a pint and a half; mix the liquors; add the sugar, and dissolve it.—*London.*

Syrupus Rhamni—*Syrup of Buckthorn, E.*—Take of fresh juice of buckthorn berries 4 pints; ginger, sliced, and pimento, bruised, of each, 6 drachms; pure sugar 4 pounds. Let the juice rest for three days; pour off the clear liquor and filter it. Digest the ginger and pimento in a pint of the filtered liquor at a gentle heat for four hours, and filter. Boil down the rest of the juice to one pint and a half; mix the two liquors, add the sugar, and dissolve it with the aid of heat.—*Edinburgh.*

Syrupus Rhœados—*Syrup of Red Poppy, L.*—Take of red poppy (petals) a pound; water, boiling, a pint; sugar 2½ pounds. Add the red poppy petals gradually to the water, heated in a water-bath, frequently stirring them; then the vessel being removed, macerate for twelve hours; afterwards press out the liquor, and, when the dregs have subsided, add the sugar, and dissolve it.—*London.*

Syrupus Rhœados—*Syrup of Red Poppy, E.*—Take of corn poppy petals 1 pound; boiling water 1 pint; pure sugar 2½ pounds. Heat the water over a vapour-bath, add the petals by degrees, stirring occasionally; remove the vessel from the bath, infuse for twelve hours; strain and express the liquor; add to it the sugar, and dissolve this with the aid of heat.—*Edinburgh.*

Syrupus Papaveris Rhœados—*Syrup of the Red Poppy, D.*—Take of the fresh petals of the red poppy a pound; boiling water 20 fluid ounces; add the flowers gradually to the boiling water; then, having removed the vessel from the fire, macerate in a lower heat for twelve hours; express the liquor, and set it aside, that the feces may subside; finally, let the sugar be added so as to make a syrup.—*Dublin.*

Syrupus Rhei—*Syrup of Rhubarb, U.S.*—Take of rhubarb, bruised, 2 ounces; boiling water a pint; sugar 2 pounds. Macerate the rhubarb in the water for twenty-four hours, and strain; then add the sugar, and proceed in the manner directed for syrup.—*United States.*

Sirop de Rhubarbe—*Syrup of Rhubarb, P.*—Take of rhubarb-root 96 parts; cold water 300 parts; white sugar 1,000 parts. Slice the rhubarb, and macerate in the water for twelve hours, press, and filter; add the sugar, and make into syrup.—*Paris Codex.*

Syrupus Rhei Aromaticus—*Aromatic Syrup of Rhubarb, U.S.*—Take of rhubarb, bruised, 2½ ounces; cloves, bruised, cinnamon, bruised, each, half an ounce; nutmeg, bruised, 2 drachms; diluted alcohol 2 pints; syrup 6 pints. Macerate the rhubarb and aromatics in the diluted alcohol for fourteen days, and strain; then, by means of a water-bath, evaporate the liquor to a pint, and, while it is still hot, mix it with the syrup, previously heated. Aromatic syrup of rhubarb may also be prepared by putting the rhubarb and aromatics, previously reduced to coarse powder, and moistened with diluted alcohol, into an apparatus for displacement, pouring upon them gradually diluted alcohol until two pints of filtered liquor are obtained, then evaporating to a pint, and completing the process as above directed.—*United States.*

Sirop de Rhubarbe Composé—*Compound Syrup of Rhubarb, P.*—Take of rhubarb 192 parts; dried root of wild succory 192 parts; dried leaves of wild succory 192 parts; dried leaves of fumitory 96 parts; dried leaves of scolopendrium 96 parts; berries of alkekengi, or winter cherry, cinnamon, bruised, but free from dust, 16 parts; sandal-wood, bruised, but free from dust, 16 parts; simple syrup 4,500 parts. Bruise the rhubarb, and macerate it in 1,000 parts of hot water for twelve hours; strain with slight pressure, and preserve in a cool place. Place the residue of the rhubarb in a water-bath with the wild succory-root bruised, the leaves cut, and the berries crushed; add 5,000 parts of boiling water; infuse for twenty-four hours, and strain with pressure; decant the liquor, and filter it; mix with the simple syrup, and evaporate; then add the first infusion of the rhubarb, and digest for twelve hours in a water-bath with the cinnamon and sandal; strain, and finish the syrup.—*Paris Codex.*

Syrupus Rosæ—*Syrup of Rose, L. and D.*—Take of damask rose (petals), dried, 7 ounces; sugar 6 pounds; water, boiling, 3 pints. Macerate the rose-petals in the water for twelve hours, and strain. Evaporate the strained liquor in a water-bath to two pints; then add the sugar, and dissolve it.—*London and Dublin.*

Syrupus Rosæ Centifoliæ—*Syrup of Rose, E.*—Take of fresh damask rose-petals 1 pound; boiling water 3 pints; pure sugar 3 pounds. Infuse the petals in the water for twelve hours; strain the liquor, and dissolve the sugar in it with the aid of heat.—*Edinburgh.*

Syrupus Rosæ Gallicæ—*Syrup of Red Rose, E.*—Take of dried red rose-petals 2 ounces; boiling water 1 pint; pure sugar 2 ounces. Proceed as for the syrup of damask rose.—*Edinburgh.*

Syrupus Sarzæ—*Syrup of Sarsaparilla, L. and D.*—Take of sarsaparilla, sliced, 15 ounces; water, boiling, a gallon; sugar 15 ounces. Macerate the sarsaparilla in the water for twenty-four hours; then boil down to four pints, and strain the liquor while hot; afterwards add the sugar, and evaporate to a proper consistence.—*London and Dublin.*

Syrupus Sarzæ—*Syrup of Sarza, E.*—Take of sarza, in chips, 15 ounces; boiling water 1 gallon; pure sugar 15 ounces. Infuse the sarsaparilla in the water for twenty-four hours; boil down to four pints, and strain the liquor while hot; add the sugar, and evaporate to the consistence of syrup.—*Edinburgh.*

Syrupus Sarsaparillæ Compositus—*Compound Syrup of Sarsaparilla, U.S.*—Take of sarsaparilla, bruised, 2 pounds; guaiacum-wood, rasped, 3 ounces; hundred-leaved roses, senna, liquorice-root, bruised, each, 2 ounces; oil of sassafras, oil of anise, each, 5 minims; oil of partridge-berry 3 minims; diluted alcohol 10 pints; sugar 8 pounds. Macerate the sarsaparilla, guaiacum-wood, roses, senna, and liquorice-root in the diluted alcohol for fourteen days; then express and filter. Evaporate the tincture by means of a water-bath to four pints; filter, add the sugar, and proceed in the manner directed for syrup. Lastly, having rubbed the oil with a small quantity of the syrup, mix them thoroughly with the remainder.

Compound syrup of sarsaparilla may also be prepared in the following manner:—

Take of sarsaparilla, ground into coarse powder, 2 pounds; guaiacum-wood, rasped, 3 ounces; hundred-leaved roses, senna, liquorice-root, each, in coarse powder, 2 ounces; oil of sassafras, oil of anise, each, 5 minims; oil of partridge-berry 3 minims; water a sufficient quantity; sugar 8 pounds. Mix the sarsaparilla, guaiacum wood, roses, senna, and liquorice-root, with three pints of water, and allow the mixture to stand for twenty-four hours. Then transfer the whole to an apparatus for displacement, and pour on water gradually until one gallon of filtered liquor is obtained. Evaporate this to four pints; then add the sugar, and proceed in the manner directed for syrup. Lastly, having rubbed the oils with a small portion of the syrup, mix them thoroughly with the remainder.—*United States.*

Sirop de Salsepareille—*Syrup of Sarsaparilla, P.*—Take of alcoholic extract of sarsaparilla 192 parts; water 2,000 parts; white sugar 4,000 parts. Dissolve the extract in the water with the aid of a gentle heat; filter the solution while warm, add the sugar, and form into a syrup.—*Paris Codex.*

Sirop de Salsepareille Composé—*Compound Syrup of Sarsaparilla, P.*—Take of sarsaparilla 1,000 parts; dried flowers of borage 64 parts; hundred-leaved roses 64 parts; senna leaves 64 parts; aniseed 64 parts; white sugar 1,000 parts; honey 1,000 parts. Slice the sarsaparilla and infuse it in 6,000 parts of water for twenty-four hours; boil for a quarter of an hour, and strain; boil the residue with 5,000 parts of water a second and a third time, and pour the last boiling decoction upon the borage, senna, roses, and aniseed; infuse for twelve hours, and express. Decant all the liquors, and evaporate to 3,000 parts. Allow the concentrated solution to deposit; decant; add the sugar and honey, and make into a syrup, which clarify with the white of eggs, and strain.—*Paris Codex.*

Syrupus Sennæ—*Syrup of Senna, L.*—Take of senna 2½ ounces; fennel, bruised, 10 drachms; manna 3 ounces; sugar 15 ounces; water, boiling, a pint. Macerate the senna and fennel in the water with a gentle heat for an hour. Mix the manna and sugar with the strained liquor; then boil down to a proper consistence.—*London.*

Syrupus Sennæ—*Syrup of Senna, E.*—Take of senna 4 ounces; boiling water 1 pint and 4 fluid ounces; treacle 48 ounces. Infuse the senna in the water for twelve hours; strain and express strongly through calico, so as to obtain a pint and two fluid ounces at least of liquid. Concentrate the treacle in the vaponr-bath as far as possible, or till a little taken out upon a rod becomes nearly concrete on cooling; and, while the treacle is still hot, add the infusion, stirring carefully, and removing the vessel from the vapour-bath as soon as the mixture is complete.

If Alexandrian senna be used for this preparation, it must be carefully freed of cynanchum leaves by picking it.—*Edinburgh.*

Syrupus Sennæ—*Syrup of Senna, D.*—Take of manna, refined sugar, of each, a pound; senna leaves half an ounce; boiling water a pint. Let the senna leaves be macerated in the water, in a covered

vessel, for twelve hours; then dissolve the manna and the sugar in the strained liquor.—*Dublin.*

Syrupus Senna—*Syrup of Senna, U.S.*—Take of senna 2 ounces; fennel seed, bruised, an ounce; boiling water a pint; sugar 15 ounces. Digest the senna and fennel seed in the water, with a gentle heat, for an hour; then strain, add the sugar, and evaporate to the proper consistence.—*United States.*

Syrupus Senegæ—*Syrup of Seneka, U.S.*—Take of seneka, bruised, 4 ounces; water a pint; sugar a pound. Boil the water with the seneka to one half, and strain; then add the sugar, and proceed in the manner directed for syrup.

Syrup of seneka may also be prepared in the following manner:—Take of seneka, in coarse powder, 4 ounces; water a sufficient quantity; sugar 15 ounces. Mix the seneka with 4 fluid ounces of water, and allow the mixture to stand for twelve hours; then put it into an apparatus for displacement, and gradually pour water upon it until the liquid passes nearly tasteless. Evaporate the filtered lquor to half a pint, strain, and, having added the sugar, proceed in the manner directed for syrup.—*United States.*

Syrupus Scillæ—*Syrup of Squill, E.*—Take of vinegar of squill 3 pints; pure sugar, in powder, 7 pounds. Dissolve the sugar in the vinegar of squills with the aid of a gentle heat and agitation.—*Edinburgh.*

Syrupus Scillæ—*Syrup of Squill, U.S.*—Take of vinegar of squill a pint; sugar 2 pounds. Add the sugar to the vinegar of squill, and proceed in the manner directed for syrup.—*United States.*

Syrupus Scillæ Compositus—*Compound Syrup of Squill—Hive-Syrup, U.S.*—Take of squill, bruised, seneka, bruised, each, 4 ounces; tartrate of antimony and potassa 48 grains; water 4 pints; sugar 3½ pounds. Pour the water upon the squill and seneka, and, having boiled to one half, strain, and add the sugar; then evaporate to three pints, and, while the syrup is still hot, dissolve it in the tartrate of antimony and potassa.

Compound syrup of squill may be advantageously prepared in the following manner by those familiar with the process of displacement:—Take of squill, in coarse powder, seneka, in coarse powder, each, 4 ounces; tartrate of antimony and potassa 48 grains; alcohol half a pint; water a sufficient quantity; sugar 3½ pounds. Mix the alcohol with 2½ pints of water, and macerate the squill and seneka in the mixture for twenty-four hours. Put the whole into an apparatus for displacement, and add as much water as may be necessary to make the filtered liquor amount to three pints. Boil the liquor for a few minutes, evaporate to one half, and strain; then add the sugar, and evaporate until the resulting syrup measures three pints. Lastly, dissolve the tartrate of antimony and potassa in the syrup while it is still hot.—*United States.*

Sirop de Sulphate de Quinine—*Syrup of Sulphate of Quinine, P.*—Take of sulphate of quinine 2 parts; simple syrup 500 parts; distilled water 8 parts; spirits, vitriol, 8 drops. Proceed as for syrup of acetate of morphia.—*Paris Codex.*

Syrupus Tolutanus—*Syrup of Tolu, L.*—Take of balsam of tolu 10 drachms; water, boiling, a pint; sugar 2½ pounds. Boil the balsam in the water for half an hour in a vessel lightly covered, frequently stirring, and strain the cooled liquor; then add the sugar, and dissolve it.—*London.*

Syrupus Tolutanus—*Syrup of Tolu, E.*—Take of simple syrup 2 pounds; tincture of tolu an ounce. When the syrup has been recently prepared, and has not altogether cooled, add the tincture of tolu by degrees, agitating briskly.—*Edinburgh.*

Syrupus Balsami Tolutani—*Syrup of Balsam of Tolu, D.*—Take of syrup, recently prepared, one pound and a half; tincture of balsam of tolu 1 ounce. When the syrup is nearly cold, mix in it, by degrees, the tincture, by assiduously stirring.—*Dublin.*

Syrupus Tolutani—*Syrup of Tolu, U.S.*—Take of tincture of tolu a fluid ounce; syrup a pint and a half. Mix the tincture with the syrup, and by means of a water-bath evaporate to the proper consistence.—*United States.*

Sirop de Baume de Tolu—*Syrup of Balsam of Tolu, P.*—Take of balsam of tolu 125 parts; water 500 parts; whitest sugar Q.S. Digest, by means of a water-bath, the balsam of tolu in the water for twelve hours in a covered vessel, frequently stirring; filter the liquor when cold; add double its weight of sugar, and dissolve it.—*Paris Codex.*

Sirop de Thridace—*Syrup of Extract of Lettuce, P.*—Take of extract of lettuce 7 parts; distilled water 64 parts; simple syrup 500 parts. Dissolve the extract in the water; add the solution to the syrup made to boil, and evaporate to the proper consistence.—*Paris Codex.*

In the same manner prepare

Sirop de Cachou—*Syrup of Extract of Catechu, P.*

Sirop de Valériane—*Syrup of Valerian, P.*—Take of dried valerian-root 500 parts; simple syrup 4,000 parts. Bruise the root, and digest it with 4,000 parts of water in an alembic for twelve hours; then distil off 750 parts; express what remains, filter the liquor, and mix it with the syrup; evaporate to 3,250 parts, and reduce it to the proper consistence with the aromatic liquor.—*Paris Codex.*

Syrupus Violæ—*Syrup of Violets, E.*—Take of fresh violets 1 pound; boiling water 2½ pints; pure sugar 7½ pounds. Infuse the flowers for twenty-four hours in the water, in a covered glass or earthenware vessel; strain without squeezing, and dissolve the sugar in the filtered liquor.—*Edinburgh.*

Syrupus Violæ—*Syrup of Violet, D.*—Take of the fresh petals of the violet 2 pounds; boiling water 5 pints. Macerate for twenty-four hours; then strain the liquor through fine linen with expression; and add a sufficient quantity of sugar to make a syrup.—*Dublin.*

Sirop de Violettes—*Syrup of Violets, P.*—Take of the fresh petals of violets 500 parts; boiling water 1,000 parts; whitest sugar Q.S. Pour upon the petals three times their weight of water at the temperature of 113° Fahr.; agitate for several minutes, and strain with gentle pressure; put the petals into a water-bath, in a tin vessel, and add twice their weight of boiling water; after twelve hours, strain with pressure through a fine linen sieve; allow the liquor to deposit, and decant; add to the clear liquor twice its weight of sugar, and dissolve.—*Paris Codex.*

In the same manner prepare

Sirop de Chevrefeuille		"	*Syrup of Honeysuckle, P.*
"	Camomile	"	*Chamomile, P.*
"	Nymphœa	"	*White Water-lily, P.*
"	Coquelicot	"	*Red Poppy, P.*
"	d'Æillets	"	*Clove-pink, P.*
"	de Tussilage	"	*Coltsfoot, P.*
"	Pivoine	"	*Piony, P.*
"	Narcisse Pres	"	*Daffodil, P.*

Syrup of violets must not be prepared in a copper pan.

Syrupus Zingiberis—*Syrup of Ginger, L.*—Take of ginger, sliced, 2½ ounces; water, boiling, a pint; sugar 2½ pounds. Macerate the ginger in the water for four hours, and strain; then add the sugar, and dissolve it.—*London.*

Syrupus Zingiberis—*Syrup of Ginger, E.*—Take of ginger 2½ ounces; boiling water 1 pint; pure sugar 2½ pounds. Bruise the ginger, infuse it for four hours in the water, and to the strained liquor add the sugar, and dissolve it with the aid of heat.—*Edinburgh.*

Syrupus Zingiberis—*Syrup of Ginger, D.*—Take of ginger-root, bruised, 4 ounces; boiling water 3 pints. Macerate for twenty-four hours; then strain the liquor, and add sugar, so as to make a syrup.—*Dublin.*

Syrupus Zingiberis—*Syrup of Ginger, U.S.*—Take of tincture of ginger 4 fluid ounces; syrup a gallon. Mix the tincture with the syrup, and, by means of a water-bath, evaporate to the proper consistence.—*United States.*

Juices.

Sucs Antiscorbutiques—*Antiscorbutic Juices, P.*—Take of the fresh leaves of cress, scurvygrass, and marsh trefoil, equal parts. Beat them in a marble mortar; express the juice, and filter through paper.—*Paris Codex.*

Suc de Chicorée—*Juice of Wild Succory, P.*—Take of clean leaves of wild succory Q.S. Beat them in a marble mortar; express the juice, and filter through paper.—*Paris Codex.*

In the same manner prepare

Suc de Feuilles de Belladone			*Deadly Nightshade Juice, P.*
"	"	Bourrache	*Common Borage Juice, P.*
"	"	Cigue	*Hemlock Juice, P.*
"	Stramonium		*Thornapple Juice, P.*
"	Pétales de Roses		*Hundred-leaved Rose Juice, P.*

Suc d'Ecorce de Racine de Sureau—*Bark of Elder-root Juice, P.*

When the juice is too mucilaginous, or the plants not sufficiently juicy, after beating them it is well to add the eighth of their weight of water.

Suc de Carottes—*Carrot Juice, P.*—Take of the root of carrots Q.S. Reduce the root to a pulp by rasping, and submit to pressure. Clarify the juice by filtration.—*Paris Codex.*

Suc de Cerise—*Cherry Juice, P.*—Take of cherries Q.S. Smash the cherries between the hands over a horse-hair sieve; submit the marc to pressure, and add the juice which is then obtained to the former product; allow it to ferment for two days; filter, and preserve by Appert's process.—*Paris Codex.*

In the same manner prepare

Suc d'Epine Vinette		*Barberry Juice, P.*
"	de Semences de Grenades	*Pomegranate Juice, P.*
"	de Verjus	*Verjuice, P.*

Suc de Chou Rouge—*Red Cabbage Juice, P.*—Take of the leaves of red cabbage 500 parts; water 96 parts. Cut the leaves, beat them in a mortar to a pulp, dilute with the water prescribed, express, heat the juice, that the albumen may coagulate, and filter.—*Paris Codex.*

Suc de Citrons—*Citron Juice, P.*—Take of picked and juicy citrons Q.S. Carefully remove the rind and seeds; express the fruit gently; mix the residue with straw, and press. Allow it all to clarify by repose; filter through paper, and preserve by Appert's process.—*Paris Codex.*

In the same manner prepare

Suc d'Oranges Douces—*Sweet Orange Juice, P.*

" Ameres—*Seville Orange Juice, P.*

Suc de Coings—*Quince Juice, P.*—Take of quinces just before they become ripe Q.S. Wipe them with a rough cloth; reduce to a pulp by means of a rasp; mix this pulp with clean straw, and submit the whole to pressure; allow the juice to ferment slowly until it is clarified; filter through paper, and preserve as above.—*Paris Codex.*

In the same manner prepare

Suc de Pommes—*Apple Juice, P.*

Suc de Framboises—*Raspberry Juice, P.*—Take of raspberries, before they become quite ripe, Q.S. Smash the raspberries with the hand on a sieve; mix the marc with the juice, and place the whole in a cool place; after two or three days, when a portion of clear juice floats on the surface, pass through a sieve, and press the residue; filter the juice, and preserve as above.—*Paris Codex.*

Suc de Groseilles—*Currant Juice, P.*—Take of red currants 1,000 parts; cherries 100 parts. First smash the currants with the hands over a sieve, and then in the same manner the cherries; submit the marcs to pressure, mix the products, and put by in a cool place; after twenty-four hours, place the gelatinous mass which has formed upon a cloth to drain, press the residue in a proper wooden press, filter the juice obtained, mix with the other, and preserve as before.—*Paris Codex.*

Suc de Nerprun—*Buckthorn Juice, P.*—Take of buckthorn berries, ripe, Q.S. Crush the berries with the hands; allow them to ferment for three or four days; express, filter the juice, and preserve as before.—*Paris Codex.*

In the same manner prepare

Suc de Baies de Sureau—*Elderberry Juice, P.*

" Mures—*Mulberry Juice, P.*

Tinctures.

Tinctura Aconite—*Tincture of Aconite, U.S.*—Take of aconite 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper. This tincture may also be prepared by thoroughly moistening the aconite, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of the filtered liquor are obtained.—*United States.*

Tinctura Aloës—*Tincture of Aloes, L.*—Take of aloes, powdered, an ounce; extract of liquorice 3 ounces; water a pint and a half; rectified spirit half a pint. Macerate for fourteen days, and strain.—*London.*

Tinctura Aloes—*Tincture of Aloes, E.*—Take of aloes (Socotrine or Indian), in coarse powder, 1 ounce; extract of liquorice 3 ounces; rectified spirit 12 fluid ounces; water 1 pint and 8 fluid ounces. Mix them, and digest for seven days with occasional agitation; filter the clear liquor separated from the sediment. This tincture cannot without difficulty and delay be prepared by percolation.—*Edinburgh.*

Tinctura Aloes—*Tincture of Aloes, D.*—Take of Socotrine aloes, in powder, half an ounce; extract of liquorice, dissolved in 8 ounces of boiling water, 1½ ounces; proof spirit 8 fluid ounces. Digest for seven days; then strain.—*Dublin.*

Tinctura Aloës—*Tincture of Aloes, U.S.*—Take of aloes, in powder, an ounce; liquorice 3 ounces; alcohol half a pint; distilled water a pint and a half. Macerate for fourteen days, and filter through paper.—*United States.*

Tinctura Aloës Composita—*Compound Tincture of Aloes, L.*—Take of aloes, powdered, 4 ounces; saffron 2 ounces; tincture of myrrh 2 pints. Macerate for fourteen days, and strain.—*London.*

Tinctura Aloes et Myrrhæ—*Tincture of Aloes and Myrrh, E.*—Take of aloes (Socotrine or Indian), in coarse powder, 4 ounces; saffron 2 ounces; tincture of myrrh 2 pints. Digest for seven days; and filter the clear superincumbent liquor. This tincture cannot be well prepared by percolation.—*Edinburgh.*

Tinctura Aloes Composita—*Compound Tincture of Aloes, D.*—Take of tincture of myrrh 2 pints; socotrine aloes, in powder, 3 ounces. Macerate for fourteen days, and strain.—*Dublin.*

Tinctura Aloës et Myrrhæ—*Tincture of Aloes and Myrrh—Elixir Proprietatis, U.S.*—Take of aloes, in powder, 3 ounces; saffron an ounce; tincture of myrrh 2 pints. Macerate for fourteen days, and filter through paper.—*United States.*

Tincture d'Aloès Composée—*Compound Tincture of Aloes, P.*—Take of Socotrine aloes 36 parts; gentian-root 4 parts; rhubarb-root 4 parts; zedoary 4 parts; saffron 4 parts; agaric 4 parts; theriaca 4 parts; diluted alcohol, sp. gr. 920, 1,728 parts. Digest the substances, conveniently divided, with half the alcohol for eight days; strain, add the remainder of the alcohol, and digest again; strain and press; mix the two products, and filter.—*Paris Codex.*

Tinctura Ammoniæ Composita—*Compound Tincture of Ammonia, L.*—Take of mastich 2 drachms; rectified spirit 9 fluidrachms; oil of lavender 14 minims; oil of amber 4 minims; stronger solution of ammonia a pint. Macerate the mastich in the spirit, that it may be dissolved, and pour off the clear tincture; then add the other ingredients, and shake them all together.—*London.*

Tincturæ Asafœtidæ—*Tincture of Asafœtidæ, L.*—Take of asafœtida 5 ounces; rectified spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

Tinctura Asafœtidæ—*Tincture of Asafœtidæ, E.*—Take of asafœtida, in small fragments, 5 ounces; rectified spirit 2 pints. Digest for seven days, and filter the clear liquor. This tincture cannot be made by percolation without much delay.—*Edinburgh.*

Tinctura Asafœtidæ—*Tincture of Asafœtidæ, D.*—Take of asafœtida 4 ounces; rectified spirit of wine 2 pints; water 8 fluid ounces. Add the spirit to the asafœtida, previously triturated with water, then digest for fourteen days, and strain.—*Dublin.*

Tinctura Asafetida—*Tincture of Asafetida, U.S.*—Take of asafetida 4 ounces; alcohol 2 pints. Macerate for fourteen days, and filter through paper.—*United States.*

Tinctura Aurantii—*Tincture of Orange-peel, L. and D.*—Take of orange-peel, dried, 3½ ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

Tinctura Aurantii—*Tincture of Orange-peel, E.*—Take of bitter orange-peel, dried, 3½ ounces; proof spirit 2 pints. Digest for seven days, strain, and express strongly, and filter the liquor. This tincture may be prepared by percolation, by cutting the peel into small fragments, macerating it in a little of the spirit for twelve hours, and beating the mass into a coarse pulp before putting it into the percolator.—*Edinburgh.*

Tinctura Belladonnæ—*Tincture of Belladonna, U.S.*—Take of belladonna 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the belladonna, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

Tinctura Balsami Tolutani—*Tincture of Balsam of Tolu, L.*—Take of balsam of tolu 2 ounces; rectified spirit 2 pints. Macerate until the balsam is dissolved, and strain.—*London.*

Tinctura Tolutana—*Tincture of Tolu, E.*—Take of tolu balsam, in coarse powder, 3½ ounces; rectified spirit 2 pints. Digest the balsam in the spirit with a gentle heat till it is dissolved.—*Edinburgh.*

Tinctura Balsami Tolutani—*Tincture of Balsam of Tolu, D.*—Take of balsam of tolu 1 ounce; rectified spirit a pint. Digest in a close vessel until the balsam is dissolved, and strain.—*Dublin.*

Tincture Tolutani—*Tincture of Tolu, U.S.*—Take of balsam of tolu 3 ounces; alcohol 2 pints. Macerate until the balsam is dissolved, then filter through paper.—*United States.*

Tinctura Benzöini Composita—*Compound Tincture of Benzoin, L. and D.*—Take of benzoin 3½ ounces; storax, strained, 2½ ounces; balsam of tolu 10 drachms; aloes 5 drachms; rectified spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

Tinctura Benzoini Composita—*Compound Tincture of Benzoin, E.*—Take of benzoin, in coarse powder, 4 ounces; Peru balsam 2½ ounces; East Indian aloes half an ounce; rectified spirit 2 pints. Digest for seven days, pour off the clear liquor, and filter it.—*Edinburgh.*

Tinctura Benzoini Composita—*Compound Tincture of Benzoin, U.S.*—Take of benzoin 3 ounces; purified storax 2 ounces; balsam of tolu 1 ounce; aloes, in powder, half an ounce; alcohol 2 pints. Macerate for fourteen days, and filter through paper.—*United States.*

Teinture de Benzoin—*Tincture of Benzoin, P.*—Take of benzoin, in powder, 125 parts; alcohol, sp. gr. ·850, 500 parts. Macerate for fourteen days, agitating occasionally; filter.—*Paris Codex.*

In the same manner prepare

Teinture de Baume de Tolu—*Tincture of Balsam of Tolu, P.*

" Térébenthine " *Turpentine, P.*

" Resine de Gayac " *Guaiacum, P.*

" Scammonée " *Scammony, P.*

" d'Asafœtida " *Asafœtida, P.*

TINCTURE DE GOMME AMMONIAQUE " *Gum Ammoniacum, P.*
" MYRRHÆ " *Myrrh, P.*
and all other gum resins and resinous juices.

TINCTURA BUCKU—*Tincture of Bucku, E.*—Take of buchu 5 ounces; proof spirit 2 pints. Digest for seven days, pour off the clear liquor, and filter it. This tincture may be conveniently and quickly made also by the process of percolation.—*Edinburgh.*

TINCTURA BUCHU—*Tincture of Buchu, D.*—Take of buchu 2 ounces; proof spirit 1 pint. Macerate for seven days, and filter.—*Dublin.*

TINCTURA CALUMBÆ—*Tincture of Calumba, L.*—Take of calumba, sliced, 3 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA CALUMBÆ—*Tincture of Calumba, E. and D.*—Take of calumba, in small fragments (if by percolation, in moderately fine powder), 3 ounces; proof spirit 2 pints. Digest for seven days, pour off the clear liquor, express the residuum strongly, and filter the liquors. This tincture is much more conveniently prepared by the process of percolation, allowing the powder to be soaked with a little of the spirit for six hours before putting it into the percolator.—*Edinburgh and Dublin.*

TINCTURA COLOMBÆ—*Tincture of Columbo, U.S.*—Take of columbo, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days; express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the colombo, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TINCTURA CAMPHORÆ—*Tincture of Camphor, L.*—Take of camphor 5 ounces; rectified spirit 2 pints. Mix, that the camphor may be dissolved.—*London.*

TINCTURA CAMPHORÆ—*Tincture of Camphor, E.*—Take of camphor, in small fragments, 2½ ounces; rectified spirit 2 pints. Dissolve the camphor in the spirit.—*Edinburgh.*

TINCTURA CAMPHORÆ—*Tincture of Camphor, U.S.*—Take of camphor 4 ounces; alcohol 2 pints. Dissolve the camphor in the alcohol.—*United States.*

TINCTURA CAMPHORÆ COMPOSITA—*Compound Tincture of Camphor, L.*—Take of camphor 2½ scruples; hard opium, powdered, benzoic acid, each, 72 grains; oil of anise a fluidrachm; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA OPII CAMPHORATA—*Camphorated Tincture of Opium, E.*—Take of camphor 2½ scruples; opium, sliced, and benzoic acid, 4 scruples; oil of anise 1 fluidrachm; proof spirit 2 pints. Digest for seven days, and then filter.—*Edinburgh.*

TINCTURE OPII CAMPHORATA—*Camphorated Tincture of Opium—Paregoric Elixir, U.S.*—Take of opium, in powder, benzoic acid, each, a drachm; oil of anise a fluidrachm; clarified honey 2 ounces; camphor 2 scruples; diluted alcohol 2 pints. Macerate for fourteen days, and filter through paper.—*United States.*

TINCTURA CANTHARIDIS—*Tincture of Cantharides, L.*—Take of cantharides half an ounce; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA CANTHARIDIS—*Tincture of Cantharides, E.*—Take of cantharides half an ounce; proof spirit 2 pints. Digest for seven days; strain, and express strongly the residuum; filter the liquor. This tincture may be obtained more conveniently and expeditiously by percolation, provided the cantharides be reduced to coarse powder, and left with a little of the spirit in the state of pulp for twelve hours before the process of percolation is commenced.—*Edinburgh.*

TINCTURA CANTHARIDIS—*Tincture of Blistering Fly, D.*—Take of blistering flies, in powder, 2 drachms; proof spirit a pound and a half. Macerate for seven days, then strain.—*Dublin.*

TINCTURA CANTHARIDIS—*Tincture of Spanish Flies, U.S.*—Take of Spanish flies, bruised, an ounce; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the flies, in powder, with diluted alcohol, allowing them to stand for twenty-four hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TEINTURE DE CANTHARIDES—*Tincture of Cantharides, P.*—Take of cantharides, in powder, 64 parts; diluted alcohol, sp. gr. 920, 500 parts. Macerate for fourteen days, strain, and press.—*Paris Codex.*

TEINTURE ETHÉRÉE DE CANTHARIDES—*Ethereal Tincture of Cantharides, P.*—Take of cantharides, powdered, 125 parts; acetic ether 1,000 parts. Macerate in a stoppered bottle for eight days, express, and filter.—*Paris Codex.*

TINCTURA CAPSICI—*Tincture of Capsicum, L. and D.*—Take of capsicum, bruised, 10 drachms; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA CAPSICI—*Tincture of Capsicum, E.*—Take of capsicum, bruised (or, if percolation be followed, in moderately fine powder), 10 drachms; proof spirit 2 pints. Digest for seven days, strain, squeeze the residuum, and filter the liquors. This tincture is best prepared by percolation, which may be commenced so soon as the capsicum is made into a pulp with a little of the spirit.—*Edinburgh.*

TINCTURA CAPSICI—*Tincture of Cayenne Pepper, U.S.*—Take of cayenne pepper an ounce; diluted alcohol 2 pints. Macerate for fourteen days, and filter through paper.

This tincture may also be prepared by thoroughly moistening the cayenne pepper, in powder, with diluted alcohol, putting it into an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TINCTURA CARDAMOMI—*Tincture of Cardamom, L. and D.*—Take of cardamoms, bruised, 3½ ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA CARDAMOMI—*Tincture of Cardamoms, E.*—Take of the seeds of cardamoms, bruised, 4½ ounces; proof spirit 2 pints. Digest for seven days, strain, squeeze the residuum, and filter the liquors. This tincture may be better prepared by the process of percolation, in the same way with the tincture of capsicum, the seeds being first ground in a coffee-mill.—*Edinburgh.*

TINCTURA CARDAMOMI—*Tincture of Cardamoms, U.S.*—Take of cardamoms, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the cardamoms, in powder, with diluted alcohol, allowing it to stand for twenty four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TINCTURA CARDAMOMI COMPOSITA—*Compound Tincture of Cardamoms, L. and D.*—Take of cardamoms, caraway, each, bruised, 2½ drachms; cochineal, powdered, a drachm; cinnamon, bruised, 5 drachms; raisins, stoned, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA CARDAMOMI COMPOSITA — *Compound Tincture of Cardamoms, E.*—Take of cardamom-seeds, bruised, and caraway, bruised, of each, 2½ drachms; cochineal, bruised, 1 drachm; cinnamon, bruised, 5 drachms; raisins 5 ounces; proof spirit 2 pints. Digest for seven days, strain, express strongly the residuum, and filter the liquors. This tincture may be also prepared by the method of percolation, if the solid materials be first beat together, moistened with a little spirit, and left thus for twelve hours before being put into the percolator.—*Edinburgh.*

TINCTURA CASCARILLÆ—*Tincture of Cascarilla, L. and D.*—Take of cascarilla, bruised, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA CASCARILLÆ—*Tincture of Cascarilla, E.*—Take of cascarilla, in moderately fine powder, 5 ounces; proof spirit 2 pints. Proceed by percolation or digestion, as afterwards directed for tincture of cinchona.—*Edinburgh.*

TINCTURA CASSIÆ—*Tincture of Cassia, E.*—Take of cassia, in moderately fine powder, 3½ ounces; proof spirit 2 pints. Digest for seven days, strain, express the residuum strongly, and filter. This tincture is more conveniently made by the process of percolation, the cassia being allowed to macerate in a little of the spirit for twelve hours before being put into the percolator.—*Edinburgh.*

TINCTURA CASTOREI—*Tincture of Castor, L.*—Take of castor, powdered, 2½ ounces; rectified spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA CASTOREI—*Tincture of Castor, E.*—Take of castor, bruised, 2½ ounces; rectified spirit 2 pints. This tincture may be prepared either by digestion or percolation, like the tincture of cassia.—*Edinburgh.*

TINCTURA CASTOREI ROSSICI—*Tincture of Castor, D.*—Take of castor, powdered, 2 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*Dublin.*

TINCTURA CASTOREI—*Tincture of Castor, U.S.*—Take of castor, bruised, 2 ounces; alcohol 2 plnts. Macerate for seven days; express, and filter through paper.—*United States.*

TINCTURA CASTOREI AMMONIATA—*Ammoniated Tincture of Castor, E.*—Take of castor, bruised, 2½ ounces; asafœtida, in small fragments, 10 drachms; spirit of ammonia 2 pints. Digest for seven days in a well-closed vessel; strain, and express strongly the residuum; and filter the liquor. This tincture cannot be so conveniently prepared by the method of percolation.—*Edinburgh.*

TEINTURE ETHÉRÉE DE CASTORÉUM—*Ethereal Tincture of Castor, P.*—Take of castor, powdered, 125 parts; sulphuric ether 500 parts.

Macerate for four days in a well-stoppered bottle, shaking occasionally; filter carefully.—*Paris Codex.*

In the same manner prepare

TEINTURE ETHÉRÉE DE SUCCI—*Ethereal Tincture of Amber, P.*

" " BAUME DE TOLU—*Ethereal Tincture of Balsam of Tolu, P.*

TEINTURE ETHÉRÉE D'ASAFŒTIDA—*Ethereal Tincture of Asafœtida, P.*

TEINTURE ETHÉRÉE DE MUSC—*Ethereal Tincture of Musk, P.*

" " AMBRE GRIS—*Ethereal Tincture of Ambergris, P.*

TINCTURA CATECHU—*Tincture of Catechu, L. and D.*—Take of catechu 3½ ounces; cinnamon, bruised, 2½ ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA CATECHU—*Tincture of Catechu, E.*—Take of catechu, in moderately fine powder, 3½ ounces; cinnamon, in fine powder, 2½ ounces; proof spirit 2 pints. Digest for seven days; strain, and express strongly the residuum; filter the liquors. This tincture may also be prepared by the process of percolation, the mixed powders being put into the percolator without being previously moistened with the spirit.—*Edinburgh.*

TINCTURA CATECHU—*Tincture of Catechu, U.S.*—Take of catechu 3 ounces; cinnamon, bruised, 2 ounces; diluted alcohol 2 pints. Macerate for fourteen days; express, and filter through paper.—*United States.*

TINCTURA CINCHONÆ—*Tincture of Cinchona, L.*—Take of heart-leaved cinchona, bruised, 8 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA CINCHONÆ—*Tincture of Cinchona, E.*—Take of yellow bark, in fine powder (or of any other species of cinchona, according to prescription), 8 ounces; proof spirit 2 pints. Percolate the bark with the spirit, the bark being previously moistened with a very little spirit, left thus for ten or twelve hours, and then firmly packed in the cylinder. This tincture may also be prepared, though much less expeditiously, and with much greater loss, by the usual process of digestion, the bark being in that case reduced to coarse powder only.—*Edinburgh.*

TINCTURA CINCHONÆ—*Tincture of Lance-leaved Cinchona, D.*—Take of cinchona bark, in powder, 4 ounces; proof spirit 2 pints. Digest for seven days, and filter through paper.—*Dublin.*

TINCTURA CINCHONÆ—*Tincture of Peruvian Bark, U.S.*—Take of Peruvian bark, in powder, 6 ounces; diluted alcohol 2 pints. Macerate for fourteen days; express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the bark with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TEINTURE DE QUINQUINA—*Tincture of Cinchona, P.*—Take of crown bark, bruised, 125 parts; diluted alcohol, sp. gr. 920, 500 parts. Macerate for fourteen days, and strain with pressure.—*Paris Codex.*

In the same manner prepare

TEINTURE DE QUINQUINA	JAUNE	—*Tincture of Yellow Bark, P.*	
"	" ROUGE	"	*Red Bark, P.*
"	BOIS DE GAYAC	"	*Guaiacum, P.*
"	RACINE D'AUNÉE	"	*Elecampane-root, P.*
"	" DE JALAP	"	*Jalap, P.*
"	" D'IPÉCACUANHA	"	*Ipecacuanha, P.*
"	GENTIANE	"	*Gentian, P.*
"	QUASSIE	"	*Quassia, P.*
"	RACINE DE RHUBARBE	"	*Rhubarb, P.*
"	" DE VALÉRIANE	"	*Valerian-root, P.*
"	BULBE DE SCILLE	"	*Squill, P.*
"	" DE COLCHIQUE	"	*Colchicum, P.*
"	FEUILLES D'ABSINTHE	"	*Wormwood, P.*
"	" D'ACONITE	"	*Aconite, P.*
"	" DE BELLADONNE		*Deadly Nightshade, P.*
"	" DE CIQUÉ	"	*Hemlock, P.*
"	" DE JUSQUIAME		*Henbane, P.*
"	" DE SENÉ	"	*Senna, P.*
"	" DE STRAMONIUM		*Thornapple, P.*
"	CACHOU	"	*Catechu, P.*

TINCTURA CINCHONÆ COMPOSITA—*Compound Tincture of Bark, L. and D.*—Take of lance-leaved cinchona, bruised, 4 ounces; orange-peel, dried, 3 ounces; serpentary, bruised, 6 drachms; saffron 2 drachms; cochineal, powdered, a drachm; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA CINCHONÆ COMPOSITA—*Compound Tincture of Bark, E.*—Take of yellow bark, in coarse powder (fine, if percolation be followed), 4 ounces; bitter orange-peel, bruised, 3 ounces; serpentaria, in moderately fine powder, 6 drachms; saffron, chopped, 2 drachms; cochineal, bruised, 1 drachm; proof spirit 2 pints. Digest for seven days; strain, and express strongly; filter the liquors. This tincture may also be conveniently prepared by the method of percolation, in the same way as the compound tincture of cardamom.—*Edinburgh.*

TINCTURA CINCHONÆ COMPOSITA—*Compound Tincture of Peruvian Bark, U.S.*—Take of Peruvian bark, in powder, 2 ounces; orange-peel, bruised, an ounce and a half; Virginia snake-root, bruised, 3 drachms; saffron, cut, red saunders, rasped, each, a drachm; diluted alcohol 20 fluid ounces. Macerate for fourteen days, express, and filter through paper.

Compound tincture of Peruvian bark may be prepared from the same dry materials, by beating them well together, moistening them thoroughly with diluted alcohol, allowing them to stand for forty-eight hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol until twenty fluid ounces of filtered liquor are obtained.—*United States.*

TINCTURA CINNAMOMI—*Tincture of Cinnamon, L. and D.*—Take of cinnamon, bruised, 3½ ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA CINNAMOMI—*Tincture of Cinnamon, E.*—Take of cinnamon, in moderately fine powder, 3½ ounces; proof spirit 2 pints. Proceed by percolation or digestion, as directed for tincture of cassia.—*Edinburgh.*

TINCTURA CINNAMOMI—*Tincture of Cinnamon, U.S.*—Take of cinnamon, bruised, 3 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the cinnamon, in powder, with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TEINTURE DE CANNELLE—*Tincture of Cinnamon, P.*—Take of cinnamon, in coarse powder, 125 parts; alcohol, sp. gr. 860, 500 parts. Macerate for fourteen days, express, and filter.—*Paris Codex.*

In the same manner prepare

TEINTURE D'ECORCE DE	CASCARILLE	—*Tincture of Cascarilla, P.*	
"	DE RACINE D'ELLÉBORE NOIR	"	*Black Hellebore-root, P.*
"	CONTRAYERVA	"	*Contrayerva, P.*
"	GINGEMBRE	"	*Ginger, P.*
"	PYRÈTHRE	"	*Pelletory, P.*
"	FEUILLES DE DIGITALE	"	*Foxglove, P.*
"	" D'ASARUM	"	*Assarabacca, P.*
"	NUX VOMIQUE	"	*Nux Vomica, P.*
"	GIROFLES	"	*Cloves, P.*
"	VANILLE	"	*Vanilla, P.*
"	CASTORÉUM	"	*Castor, P.*
"	MUSC	"	*Musk, P.*
"	D'AMBRE GRIS	"	*Ambergris, P.*

TINCTURA CINNAMOMI COMPOSITA—*Compound Tincture of Cinnamon, L.*—Take of cinnamon, bruised, an ounce; cardamoms, bruised, half an ounce; long pepper, powdered, ginger, sliced, each, 2½ drachms; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA CINNAMOMI COMPOSITA—*Compound Tincture of Cinnamon, E.*—Take of cinnamon, in coarse powder (fine, if percolation be followed), and cardamom seeds, bruised, of each, an ounce; long pepper, ground finely, 3 drachms; proof spirit 2 pints. This tincture is best prepared by the method of percolation as directed for the compound tincture of cardamom. But it also can be made in the ordinary way by digestion for seven days, straining, and expressing the liquor, and then filtering it.—*Edinburgh.*

TINCTURA CINNAMOMI COMPOSITA—*Compound Tincture of Cinnamon, U.S.*—Take of cinnamon, bruised, an ounce; cardamom, bruised, half an ounce; ginger, bruised, 3 drachms; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

Compound tincture of cinnamon may be prepared from the same dry materials, in the state of powder, by moistening them thoroughly with diluted alcohol, allowing them to stand for forty-eight hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TINCTURA COLCHICI—*Tincture of Meadow Saffron, L.*—Take of meadow saffron seeds, bruised, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA COLCHICI—*Tincture of Colchicum, E.*—Take of colchicum seeds, ground finely in a coffee-mill, 5 ounces; proof spirit 2 pints. This tincture is to be prepared like the tincture of cinchona; and percolation is much more convenient and speedy than digestion.—*Edinburgh.*

TINCTURA COLCHICI—*Tincture of Colchicum, D.*—Take of the

seeds of colchicum autumnalis 2 ounces; proof spirit a pint. Macerate for fourteen days, and strain.—*Dublin.*

TINCTURA COLCHICI SEMINIS—*Tincture of Colchicum-seed, U.S.*—Take of colchicum-seed, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the colchicum-seed, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TINCTURA COLCHICI COMPOSITA—*Compound Tincture of Colchicum, L.*—Take of meadow saffron seeds, bruised, 5 ounces; aromatic spirit of ammonia 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA CONII—*Tincture of Hemlock, L.*—Take of hemlock leaves, dried, 5 ounces; cardamoms, bruised, an ounce; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA CONII—*Tincture of Hemlock, E.*—Take of fresh leaves of conium 12 ounces; tincture of cardamom half a pint; rectified spirit one pint and a half. Bruise the hemlock leaves, express the juice strongly; bruise the residuum, pack it firmly in a percolator; transmit first the tincture of cardamom, and then the rectified spirit, allowing the spirituous liquors to mix with the expressed juice as they pass through; add gently water enough to the percolator for pushing through the spirit remaining in the residuum. Filter the liquor after agitation.—*Edinburgh.*

TINCTURA CONII MACULATI—*Tincture of Hemlock, D.*—Take of dried leaves of hemlock 2 ounces; cardamom seeds, bruised, half an ounce; proof spirit 16 ounces. Digest for seven days, and filter through paper.—*Dublin.*

TINCTURA CONII—*Tincture of Hemlock, U.S.*—Take of hemlock leaves 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the hemlock leaves, in powder, with diluted alcohol, allowing them to stand for twenty-four hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TEINTURE ETHÉRÉE DE CIGUE—*Ethereal Tincture of Hemlock, P.*—Take of hemlock leaves, in powder, 125 parts; sulphuric ether 500 parts. Proceed by the process of displacement.—*Paris Codex.*

In the same manner prepare

TEINTURE ETHÉRÉE DE JUSQUIAME—*Ethereal Tincture of Henbane, P.*

TEINTURE ETHÉRÉE D'ACONIT—*Ethereal Tincture of Aconite, P.*
" " DE BELLADONE " *Belladonna, P.*
" " DIGITALE " *Foxglove, P.*
" " NICOTIANE " *Tobacco, P.*
" " FLEURS D'ARNICA " *Arnica, P.*
" " RACINE DE PYRETHRE " *Pelletory, P.*
" " " VALERIAN " *Valerian, P.*

TINCTURA CROCI—*Tincture of Saffron, E.*—Take of saffron, chopped fine, 2 ounces; proof spirit 2 pints. This tincture is to be prepared like tincture of cinchona, either by percolation or by digestion, the former method being the more convenient and expeditious.—*Edinburgh.*

TINCTURA CUBEBÆ—*Tincture of Cubeb, L.*—Take of cubebs, bruised, 5 ounces; rectified spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA PIPERIS CUBEBÆ—*Tincture of Cubeb, D.*—Take of cubebs 4 ounces; proof spirit 2 pints. Macerate for fourteen days, and filter.—*Dublin.*

TINCTURA CUBEBÆ—*Tincture of Cubebs, U.S.*—Take of cubebs, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the cubebs, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol until two pints of filtered liquor are obtained.—*United States.*

TINCTURA CUSPARIÆ—*Tincture of Cusparia, E.*—Take of cusparia, in moderately fine powder, 4½ ounces; proof spirit 2 pints. This tincture is to be made like the tincture of cinchona, and most expeditiously by the process of percolation.—*Edinburgh.*

TINCTURA DIGITALIS—*Tincture of Foxglove, L.*—Take of foxglove leaves, dried, 4 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA DIGITALIS—*Tincture of Foxglove, E.*—Take of digitalis, in moderately fine powder, 4 ounces; proof spirit 2 pints. This tincture is best prepared by the process of percolation as directed for the tincture of capsicum. If forty fluid ounces of spirit be passed through, the density is 944, and the solid contents of a fluid ounce amount to 24 grains. It may also be made by digestion.—*Edinburgh.*

TINCTURA DIGITALIS—*Tincture of Foxglove, D.*—Take of foxglove leaves (the larger ones being rejected), dried, and reduced to coarse powder, 2 ounces; proof spirit a pint. Digest for seven days, and filter.—*Dublin.*

TINCTURA DIGITALIS—*Tincture of Foxglove, U.S.*—Take of foxglove 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the foxglove, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA GALLÆ—*Tincture of Galls, L.*—Take of galls, bruised, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA GALLARUM—*Tincture of Galls, E.*—Take of galls, in fine powder, 5 ounces; proof spirit 2 pints. This tincture may be prepared either by digestion or percolation as directed for tincture of capsicum.—*Edinburgh.*

TINCTURA GALLARUM—*Tincture of Galls, D.*—Take of galls, in powder, 4 ounces; proof spirit 2 pints. Macerate for fourteen days, and filter.—*Dublin.*

TINCTURA GALLÆ.—*Tincture of Galls, U.S.*—Take of galls, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the galls, in powder, with diluted alcohol, allowing them to stand for forty-eight hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA GALBANI—*Tincture of Galbanum, D.*—Take of galbanum, cut in small pieces, 2 ounces; proof spirit 2 pints. Digest for seven days; then filter.—*Dublin.*

TINCTURA GENTIANÆ COMPOSITA—*Compound Tincture of Gentian, L. and D.*—Take of gentian, sliced. 2½ ounces; orange peel, dried, 10 drachms; cardamoms, bruised, 5 drachms; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA GENTIANÆ COMPOSITA—*Compound Tincture of Gentian, E.*—Take of gentian, sliced and bruised, 2½ ounces; dried bitter orange-peel, bruised, 10 drachms; canella, in moderately fine powder, 6 drachms; cochineal, bruised, half a drachm; proof spirit 2 pints. Digest for seven days, strain, and express strongly; and then filter the liquor.

This tincture may be more conveniently prepared by percolation as directed for the compound tincture of cardamom.—*Edinburgh.*

TINCTURA GENTIANÆ COMPOSITA—*Compound Tincture of Gentian, U.S.*—Take of gentian, bruised, 2 ounces; orange-peel an ounce; cardamom, bruised, half an ounce; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared from the same dry materials, in the state of powder, by moistening them thoroughly with diluted alcohol, allowing them to stand for forty-eight hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TEINTURE DE GENTIANE AMMONIACALE—*Ammoniacal Tincture of Gentian, P.*—Take of gentian-root 32 parts; carbonate of ammonia 8 parts; alcohol, sp. gr. 920, 1,000 parts. Macerate for eight days, press, and filter.—*Paris Codex.*

TINCTURA GUAIACI—*Tincture of Guaiacum, L.*—Take of guaiacum resin, bruised, 7 ounces; rectified spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA GUAIACI—*Tincture of Guaiac, E.*—Take of guaiac, in coarse powder, 7 ounces; rectified spirit 2 pints. Digest for seven days, and then filter the liquor.—*Edinburgh.*

TINCTURA GUAIACI—*Tincture of Guaiacum, D.*—Take of guaiacum resin, powdered, 4 ounces; proof spirit 2 pints. Macerate for seven days, and filter.—*Dublin.*

TINCTURA GUAIACI—*Tincture of Guaiac, U.S.*—Take of guaiac, in powder, half a pound; alcohol 2 plnts. Macerate for fourteen days, and filter through paper.—*United States.*

TINCTURA GUAIACI COMPOSITA—*Compound Tincture of Guaiacum, L. and D.*—Take of guaiacum resin, bruised, 7 ounces; aromatic spirit of ammonia 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA GUAIACI AMMONIATA—*Ammoniated Tincture of Guaiac, E.*—Take of guaiac, in coarse powder, 7 ounces; spirit of ammonia 2 pints. Digest for seven days in a well-closed vessel, and then filter the liquor.—*Edinburgh.*

TINCTURA GUAIACI AMMONIATA—*Ammoniated Tincture of Guaiac, U.S.*—Take of guaiac, in powder, 4 ounces; aromatic spirit of ammonia a pint and a half. Macerate for fourteen days, and filter through paper.—*United States.*

TINCTURA HELLEBORI—*Tincture of Hellebore, L.*—Take of hellebore, bruised, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA HELLEBORI—*Tincture of Hellebore, D.*—Take of black hellebore-root, powdered, 2 ounces; cochineal, in powder, 2 scruples; proof spirit 2 pints. Digest for seven days; then filter through paper.—*Dublin.*

TINCTURA HELLEBORI—*Tincture of Black Hellebore, U.S.*—Take of black hellebore, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the black hellebore, in powder, with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA HYOSCYAMI—*Tincture of Henbane, L.*—Take of henbane leaves, dried, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA HYOSCYAMI—*Tincture of Henbane, E.*—Take of hyoscyamus, dried, and in moderately fine powder, 5 ounces; proof spirit 2 pints. This tincture is best prepared by the process of percolation, as directed for tincture of capsicum; but it may also be obtained, though with greater loss, by the process of digestion.—*Edinburgh.*

TINCTURA HYOSCYAMI—*Tincture of Henbane, D.*—Take of dried leaves of black henbane, in coarse powder, 5 ounces; proof spirit 2 pints. Digest for seven days; then strain.—*Dublin.*

TINCTURA HYOSCYAMI—*Tincture of Henbane, U.S.*—Take of henbane leaves 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the henbane leaves, in powder, with diluted alcohol, allowing them to stand for twenty-four hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA IODINII COMPOSITA—*Compound Tincture of Iodine, L.*—Take of iodine an ounce; iodide of potassium 2 ounces; rectified spirit two pints. Macerate until they are dissolved, and strain.—*London.*

TINCTURA IODINII—*Tincture of Iodine, E.*—Take of iodine 2½ ounces; rectified spirit 2 pints. Dissolve the iodine in the spirit with the aid of a gentle heat and agitation. Keep the tincture in well-closed bottles.—*Edinburgh.*

TINCTURA IODINII—*Tincture of Iodine, D.*—Take of iodine 2 scruples; rectified spirit an ounce. Mix, and dissolve the iodine with the aid of heat. Keep the mixture in a closely-stopped vial.—*Dublin.*

TINCTURE IODINI—*Tincture of Iodine, U.S.*—Take of iodine an ounce; alcohol a pint. Dissolve the iodine in the alcohol.—*United States.*

TINCTURA IODINI COMPOSITA—*Compound Tincture of Iodine, U.S.*—Take of iodine half an ounce; iodide of potassium an ounce; alcohol a pint. Dissolve the iodine and iodide of potassium in the alcohol.—*United States.*

TEINTURE D'IODE—*Tincture of Iodine, P.*—Take of iodine 32 parts; alcohol 380 parts. Dissolve.—*Paris Codex.*

TINCTURA JALAPÆ—*Tincture of Jalap, L.*—Take of jalap, bruised, 10 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA JALAPÆ—*Tincture of Jalap, E.*—Take of jalap, in moderately fine powder, 7 ounces; proof spirit 2 pints. This tincture may be prepared either by digestion or percolation as directed for tincture cinchona.—*Edinburgh.*

TINCTURA JALAPÆ—*Tincture of Jalap, D.*—Take of jalap-root, in coarse powder, 8 ounces; proof spirit 2 pints. Digest for fourteen days; then filter.—*Dublin.*

TINCTURA JALAPÆ—*Tincture of Jalap, U.S.*—Take of jalap, in powder, 8 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by moistening the jalap thoroughly with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TEINTURE DE JALAP COMPOSÉE—*Compound Tincture of Jalap, P.*—Take of jalap-root 250 parts; turbith-root 32 parts; Aleppo scammony 64 parts; proof spirit 3,000 parts. Macerate for fourteen days, strain with pressure, and filter.—*Paris Codex.*

TINCTURA KRAMERIÆ—*Tincture of Rhatany, U.S.*—Take of rhatany, in powder, 6 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by moistening the rhatany thoroughly with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA KINO—*Tincture of Kino, L.*—Take of kino, bruised, 3½ ounces; rectified spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA KINO—*Tincture of Kino, E.*—Take of kino, in moderately fine powder, 3½ ounces; rectified spirit 2 pints. Digest for seven days, and then filter. This tincture cannot be conveniently prepared by the process of percolation.—*Edinburgh.*

TINCTURA KINO—*Tincture of Kino, D.*—Take of kino 3 ounces; proof spirit a pint and a half. Digest for seven days, and filter through paper.—*Dublin.*

TINCTURA LACTUCARII—*Tincture of Lactucarium, E.*—Take of lactucarium, in fine powder, 4 ounces; proof spirit 2 pints. This tincture is best prepared by percolation as directed for tincture of myrrh; but may also be prepared by digestion with coarse powder of lactucarium.—*Edinburgh.*

TINCTURA LAVANDULÆ COMPOSITA—*Compound Tincture of Lavender, L.*—Take of spirit of lavender a pint and a half; spirit of rosemary half a pint; cinnamon, bruised, nutmegs, bruised, each, 2½ drachms; red saunders, sliced, 5 drachms. Macerate for fourteen days, and strain.—*London.*

TINCTURA LOBELIÆ—*Tincture of Lobelia, E.*—Take of lobelia, dried, and in moderately fine powder, 5 ounces; proof spirit 2 pints. This tincture is best prepared by the process of percolation, as directed for tincture of capsicum; but it may also be made in the usual way by digestion.—*Edinburgh.*

TINCTURA LOBELIA—*Tincture of Lobelia, U.S.*—Take of lobelia 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper. This tincture may also be prepared by thoroughly moistening the lobelia, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA LOBELIÆ ÆTHEREA—*Ethereal Tincture of Lobelia, E.*—Take of dry lobelia, in moderately fine powder, 5 ounces; spirit of sulphuric ether 2 pints. This tincture is best prepared by percolation, as directed for tincture of capsicum; but it may also be obtained by digestion in a well-closed vessel for seven days.—*Edinburgh.*

TINCTURA LUPULI—*Tincture of Hops, L. and D.*—Take of hops 6 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA LUPULI—*Tincture of Hops, E.*—Take any convenient quantity of hops, recently dried; separate by sifting and friction the yellowish-brown powder attached to their scales. Then take of this powder 5 ounces; and of rectified spirit 2 pints; and prepare the tincture by percolation or digestion, as directed for tincture of capsicum.—*Edinburgh.*

TINCTURA HUMULI—*Tincture of Hops, U.S.*—Take of hops 5 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.—*United States.*

TINCTURA LUPULINÆ—*Tincture of Lupulin, U.S.*—Take of lupulin 4 ounces; alcohol 2 pints. Macerate for fourteen days, and filter through paper.—*United States.*

TINCTURA MYRRHÆ—*Tincture of Myrrh, L.*—Take of myrrh, bruised, 3 ounces; rectified spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA MYRRHÆ—*Tincture of Myrrh, E.*—Take of myrrh, in moderately fine powder, 3½ ounces; rectified spirit 2 pints. Pack the myrrh very gently without any spirit in a percolator; then pour on the spirit; and, when thirty-three fluid ounces have passed through, agitate well, to dissolve the oleo-resinous matter which first passes, and which lies at the bottom. This tincture is much less conveniently obtained by the process of digestion for seven days.—*Edinburgh.*

TINCTURA MYRRHÆ—*Tincture of Myrrh, D.*—Take of myrrh, bruised, 3 ounces; proof spirit a pint and a half; rectified spirit half a pint. Digest for seven days; then strain.—*Dublin.*

TINCTURA MYRRHÆ—*Tincture of Myrrh, U.S.*—Take of myrrh, bruised, 4 ounces; alcohol 3 pints. Macerate for fourteen days, and filter through paper.—*United States.*

TINCTURA OLEI MENTHÆ PIPERITÆ—*Tincture of Oil of Peppermint—Essence of Peppermint, U.S.*—Take of oil of peppermint 2 fluid ounces; alcohol a pint. Dissolve the oil in the alcohol.—*United States.*

TINCTURA OLEI MENTHÆ VIRIDIS—*Tincture of Oil of Spearmint—Essence of Spearmint, U.S.*—Take of oil of spearmint 2 fluid

ounces; alcohol a pint. Dissolve the oil in the alcohol.—*United States.*

TINCTURA OPII—*Tincture of Opium, L.*—Take of hard opium, powdered, 3 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

TINCTURA OPII—*Tincture of Opium, E.*—Take of opium, sliced, 3 ounces; rectified spirit 1 pint and 7 fluid ounces; water 13½ fluid ounces. Digest the opium in the water at a temperature near 212° for two hours; break down the opium with the hand; strain and express the infusion; macerate the residuum in the rectified spirit for about twenty hours, and then strain and express very strongly. Mix the watery and spirituous infusions, and filter.

This tincture is not easily obtained by the process of percolation; but when the opium is of fine quality it may be prepared thus:—Slice the opium finely; mix the spirit and water; let the opium macerate in fourteen fluid ounces of the mixture for twelve hours, and then break it down thoroughly with the hand; pour the whole pulpy mass and fluid into a percolator, and let the fluid part pass through, add the rest of the spirit without packing the opium in the cylinder, and continue the process of percolation till two pints are obtained.—*Edinburgh.*

TINCTURA OPII—*Tincture of Opium, D.*—Take of purified hard opium, in coarse powder, 10 drachms; proof spirit 1 pint. Digest for seven days; then strain.—*Dublin.*

TINCTURA OPII—*Tincture of Opium, U.S.*—Take of opium, in powder, 2½ ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.—*United States.*

TINCTURA OPII ACETATA—*Acerated Tincture of Opium, U.S.*—Take of opium 2 ounces; vinegar 12 fluid ounces; alcohol half a pint. Rub the opium with the vinegar; then add the alcohol, and, having macerated for fourteen days, express, and filter through paper.—*United States.*

TINCTURA OPII AMMONIATA—*Ammoniated Tincture of Opium, E.*—Take of benzoic acid and saffron, chopped, 6 drachms of each; opium, sliced, half an ounce; oil of anise a drachm; spirit of ammonia 2 pints. Digest for seven days, and then filter.—*Edinburgh.*

TEINTURE D'OPIUM AMMONIACALE—ELIXIR PAREGORIQUE—*Paregoric Elixir, P.*—Take of picked opium 8 parts; benzoic acid 12 parts; saffron 12 parts; oil of anise 2 parts; liquor of ammonia 150 parts; rectified spirit 350 parts. Macerate for eight days; then filter.—*Paris Codex.*

TEINTURE ETHÉRÉE DE PERCHLORURE DE FER—*Ethereal Tincture of Perchloride of Iron, P.*—Take of dry perchloride of iron 4 parts; Hoffman's liquor 28 parts. Dissolve, and preserve from light.—*Paris Codex.*

TEINTURE ETHÉRÉE DE PHOSPHORE—*Ethereal Tincture of Phosphorus, P.*—Take of phosphorus 4 parts; purest sulphuric ether 200 parts. Cut the phosphorus into small pieces and wash with a little ether, then add it to the ether placed in a stopped bottle covered with black paper; macerate for a month, agitating occasionally; then put it into small bottles well stopped, and preserve from the light.—*Paris Codex.*

TINCTURA QUASSIÆ—*Tincture of Quassia, E.*—Take of quassia, in chips, 10 drachms; proof spirit 2 pints. Digest for seven days, and then filter.—*Edinburgh.*

TINCTURA QUASSIÆ—*Tincture of Quassia, D.*—Take of chips of quassia-wood an ounce, proof spirit 2 pints. Digest for seven days; then strain.—*Dublin.*

TINCTURA QUASSIÆ—*Tincture of Quassia, U.S.*—Take of quassia, rasped, 2 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by moistening the quassia thoroughly with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA QUASSIÆ COMPOSITA—*Compound Tincture of Quassia, E.*—Take of cardamom seeds, bruised, and cochineal, bruised, of each, half an ounce; cinnamon in moderately fine powder, and quassia, in chips, of each, 6 drachms; raisins 7 ounces; proof spirit 2 pints. Digest for seven days, strain the liquor, express strongly the residuum, and filter.

This tincture may also be obtained by percolation as directed for compound tincture of cardamom, provided the quassia be rasped or in powder.—*Edinburgh.*

TINCTURA RHEI—*Tincture of Rhubarb, E.*—Take of rhubarb, in moderately fine powder, 3½ ounces; cardamom seeds, bruised, half an ounce; proof spirit 2 pints. Mix the rhubarb and cardamom seeds, and proceed by the process of percolation as directed for tincture of cinchona. This tincture may be also prepared by digestion.—*Edinburgh.*

TINCTURA RHEI—*Tincture of Rhubarb, D.*—Take of rhubarb-root, sliced, 2 ounces; lessor cardamom seeds, husked and bruised, liquorice, bruised, of each, half an ounce; saffron 2 drachms; proof spirit 2 pints. Digest for seven days; then filter.—*Dublin.*

TINCTURA RHEI—*Tincture of Rhubarb, U.S.*—Take of rhubarb, bruised, 3 ounces; cardamom, bruised, half an ounce; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper. This tincture may also be prepared by thoroughly moistening the rhubarb and cardamom, in powder, with diluted alcohol, allowing them to stand for forty-eight hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA RHEI COMPOSITA—*Compound Tincture of Rhubarb, L. and D.*—Take of rhubarb, sliced, 2½ ounces; liquorice, bruised, 6 drachms; ginger, sliced, saffron, each, 3 drachms; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

TINCTURA RHEI ET ALOES—*Tincture of Rhubarb and Aloes, E.*—Take of rhubarb, in moderately fine powder, an ounce and a half; Socotrine or East Indian aloes, in moderately fine powder, 6 drachms; proof spirit 2 pints. Mix the powders, and proceed as for the tincture of cinchona.—*Edinburgh.*

TINCTURA RHEI ET ALOËS—ELIXIR SACRUM—*Tincture of Rhubarb and Aloes, U.S.*—Take of rhubarb, bruised, 10 drachms; aloes, in powder, 6 drachms; cardamom, bruised, half an ounce; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.—*United States.*

TINCTURA RHEI ET GENTIANÆ—*Tincture of Rhubarb and Gentian, E.*—Take of rhubarb, in moderately fine powder, 2 ounces; gentian, finely cut, or in coarse powder, half an ounce; proof spirit 2 pints. Mix the powders, and proceed as directed for tincture of cinchona.—*Edinburgh.*

TINCTURA RHEI ET GENTIANÆ—*Tincture of Rhubarb and Gentian, U.S.*—Take of rhubarb, bruised, 2 ounces; gentian, bruised, half an ounce; diluted alochol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the rhubarb and gentian, in powder, with diluted alcohol, allowing them to stand for forty-eight hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA RHEI ET SENNÆ—*Tincture of Rhubarb and Senna, U.S.*—*Warner's Gout Cordial, U.S.*—Take of rhubarb, bruised, an ounce; senna 2 drachms; coriander, bruised, fennel-seed, bruised, each, a drachm; red saunders, rasped, 2 drachms; saffron, liquorice, each, half a drachm; raisins, deprived of their seeds, half a pound; diluted alcohol 3 pints. Macerate for fourteen days, express, and filter through paper.—*United States.*

TEINTURE DE RAIFORT COMPOSÉE—*Compound Tincture of Horseradish, P.*—Take of horseradish 250 parts; black mustard seeds 125 parts; hydrochlorate of ammonia 64 parts; proof spirit 500 parts; compound spirit of scurvy-grass 500 parts. Slice the roots, bruise the mustard, and macerate in the spirit for eight days; strain with pressure, and filter.—*Paris Codex.*

TEINTURE DE RHUS RADICANS—*Tincture of Poison Oak, P.*—Take of fresh leaves of poison oak 500 parts; rectified spirit 500 parts. Bruise the leaves, and macerate with the alcohol for fourteen days; strain with pressure, and filter.—*Paris Codex.*

In the same manner prepare with the fresh leaves

TEINTURE D'ACONIT			*Tincture of Monkshood, P.*
"	DE	BELLADONE	*Tincture of Deadly Nightshade, P.*
"		CIGUE	" *Hemlock, P.*
"		DIGITALE	" *Foxglove, P.*
"		JUSQUIAME	" *Henbane, P.*
"		LAITUE VIREUSE	" *Wild Lettuce, P.*
"		STRAMONIUM	" *Thornapple, P.*

These tinctures differ very much from those prepared with the dried herb, and should only be used when specially prescribed.

TINCTURA SANGUINARIÆ—*Tincture of Bloodroot, U.S.*—Take of bloodroot, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the bloodroot, in powder, with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

TINCTURA SAPONIS CAMPHORATA—*Camphorated Tincture of Soap—Soap Liniment, U.S.*—Take of soap, in shavings, 4 ounces; camphor 2 ounces; oil of rosemary half a fluid ounce; alcohol 2 pints. Digest the soap with the alcohol, by means of a water-bath, till it is dissolved; then filter, and add the camphor and oil.—*United States.*

TEINTURE DE SAVON—*Tincture of Soap, P.*—Take of white soap 96

parts; carbonate of potash 4 parts; proof spirit 380 parts.—Macerate until the soap is dissolved; filter.—*Paris Codex.*

Tinctura Scillæ—*Tincture of Squill, L. and D.*—Take of squill, fresh dried, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

Tinctura Scillæ—*Tincture of Squill, E.*—Take of squill, in coarse powder, 5 ounces; proof spirit 2 pints. Prepare this tincture by percolation, as directed for tincture of cinchona, but without packing the pulp firmly in the percolator. It may likewise be obtained by digestion from the sliced bulb.—*Edinburgh.*

Tinctura Scillæ—*Tincture of Squill, U.S.*—Take of squill 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the squill, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

Tinctura Sennæ Composita—*Compound Tincture of Senna, L.*—Take of senna 3½ ounces; caraway, bruised, 3½ drachms; cardamoms, bruised, a drachm; raisins, stoned, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London.*

Tinctura Sennæ Composita—*Compound Tincture of Senna, E.*—Take of sugar 2½ ounces; coriander, bruised, 1 ounce; jalap, in moderately fine powder, 6 drachms; senna 4 ounces; caraway, bruised, and cardamom seeds, bruised, of each, 5 drachms; raisins, bruised, 4 ounces; proof spirit 2 pints. Digest for seven days, strain the liquor, express strongly the residuum, and filter the liquids.

This tincture may be more conveniently and expeditiously prepared by percolation as directed for the compound tincture of cardamom.

If Alexandrian senna be used in this preparation, it must be freed of cynanchum leaves by picking.—*Edinburgh.*

Tinctura Sennæ Composita—*Compound Tincture of Senna, D.*—Take of senna leaves a pound; caraway seeds, bruised, an ounce and a half; lesser cardamom seeds, husked and bruised, half an ounce; proof spirit a gallon. Digest for fourteen days; then filter.—*Dublin.*

Tinctura Sennæ et Jalapæ—*Tincture of Senna and Jalap, U.S.*—Take of senna 3 ounces; jalap, in powder, an ounce; coriander, bruised, caraway, bruised, each, half an ounce; cardamom, bruised, 2 drachms; sugar 4 ounces; diluted alcohol 3 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by beating well together the senna, jalap, and aromatics, moistening thoroughly with diluted alcohol, allowing them to stand for forty-eight hours, then transferring them to an apparatus for displacement, and gradually pouring upon them diluted alcohol, until three pints of filtered liquor are obtained.—*United States.*

Tinctura Serpentariæ—*Tincture of Serpentary, L.*—Take of serpentary, bruised, 3½ ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

Tinctura Serpentariæ—*Tincture of Serpentaria, E.*—Take of serpentaria, in moderately fine powder, 3½ ounces; cochineal, bruised, 1 drachm; proof spirit 2 pints. Proceed by percolation or digestion as for the tincture of cinchona.—*Edinburgh.*

Tinctura Serpentariæ—*Tincture of Virginia Snakeroot, U.S.*—Take of Virginia snakeroot, bruised, 3 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the Virginia snakeroot, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

Teinture de Succin—*Tincture of Amber, P.*—Take of amber, in very fine powder, 32 parts; rectified spirit 500 parts. Digest in a covered vessel for six days; filter.—*Paris Codex.*

Tinctura Stramonii—*Tincture of Stramonium, U.S.*—Take of stramonium seed, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the stramonium seed, in powder, with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

Tinctura Valerianæ—*Tincture of Valerian, L. and D.*—Take of valerian, bruised, 5 ounces; proof spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

Tinctura Valerianæ—*Tincture of Valerian, E.*—Take of valerian, bruised, 5 ounces; proof spirit 2 pints. Proceed by percolation or digestion as for tincture of cinchona.—*Edinburgh.*

Tinctura Valerianæ—*Tincture of Valerian, U.S.*—Take of valerian, bruised, 4 ounces; diluted alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the valerian, in powder, with diluted alcohol, allowing it to stand for forty-eight hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

Tinctura Valerianæ Composita—*Compound Tincture of Valerian, L.*—Take of valerian, bruised, 5 ounces; aromatic spirit of ammonia 2 pints. Macerate for fourteen days, and strain.—*London.*

Tinctura Valerianæ Ammoniata—*Ammoniated Tincture of Valerian, E.*—Take of valerian, bruised, 5 ounces; spirit of ammonia 2 pints. Proceed by percolation or by digestion, in a well-closed vessel, as directed for tincture of cinchona.—*Edinburgh.*

Tinctura Valerianæ Composita—*Compound Tincture of Valerian, D.*—Take of valerian-root, in powder, 2 ounces; spirit of ammonia a pint. Digest for seven days; then filter.—*Dublin.*

Tinctura Valerianæ Ammoniata—*Ammoniated Tincture of Valerian, U.S.*—Take of valerian, bruised, 4 ounces; aromatic spirit of ammonia 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the valerian, in powder, with aromatic spirit of ammonia, allowing it to stand for twenty-four hours in a covered vessel, then transferring it to an apparatus for displacement, and gradually pouring upon it aromatic spirit of ammonia, until two pints of filtered liquor are obtained.—*United States.*

Tinctura Zingiberis—*Tincture of Ginger, L. and D.*—Take of ginger, sliced, 2½ ounces; rectified spirit 2 pints. Macerate for fourteen days, and strain.—*London and Dublin.*

Tinctura Zingiberis—*Tincture of Ginger, E.*—Take of ginger, in coarse powder, 2½ ounces; rectified spirits 2 pints. Proceed by percolation or digestion as directed for tincture of cinchona.—*Edinburgh.*

Tinctura Zingiberis—*Tincture of Ginger, U.S.*—Take of ginger, bruised, 8 ounces; alcohol 2 pints. Macerate for fourteen days, express, and filter through paper.

This tincture may also be prepared by thoroughly moistening the ginger, in powder, with diluted alcohol, allowing it to stand for twenty-four hours, then transferring it to an apparatus for displacement, and gradually pouring upon it diluted alcohol, until two pints of filtered liquor are obtained.—*United States.*

Diet Drinks.

Tisane de Fleurs d'Arnica—*Arnica Diet Drink, P.*—Take of flowers of arnica 4 parts; boiling water 1,000 parts. Infuse for half an hour, and strain.—*Paris Codex.*

In the same manner prepare

Tisane de Fleurs de Coquelicots—*Red Poppy Diet Drink, P.*
" " Sureau—*Elder Flower* " *P.*

Tisane de Racine de Bardane—*Burdock Diet Drink, P.*—Take of burdock-root, bruised, 32 parts; liquorice-root 12 parts; boiling water 1,000 parts. Infuse for four hours.—*Paris Codex.*

In the same manner prepare

Tisane de Racine d'Asperge—*Asparagus Diet Drink, P.*
" " d'Aunée—*Elecampane-root* " *P.*
" " de Fraisier—*Strawberry-root* " *P.*
" " " Patience—*Patience-root* " *P.*
" " " Ratanhia—*Rhatany-root* " *P.*
" " " Saponaire—*Saponaria-root* " *P.*
" d'Ecorce de Quinquina—*Cinchona Bark* " *P.*
" " " Simarouba—*Simarouba* " *P.*

Tisane de Bourrache—*Borage Diet Drink, P.*—Take of dried leaves of borage 12 parts; boiling water 1,000 parts. Infuse for half an hour, and strain; sweeten at pleasure.—*Paris Codex.*

In the same manner prepare

Tisane de Feuille de Capillaire—*Maiden Hair Diet Drink, P.*

Tisane de Feuille de Chardon Benit—*Blessed Thistle Diet Drink, P.*

Tisane de Feuille de Chicorée—*Wild Succory Diet Drink, P.*

Tisane de Feuille d'Oranger—*Orange-leaf Diet Drink, P.*
" " de Pensées Sauvage—*Pansy Diet Drink, P.*

Tisane de Feuille de Scabiense—*Scabius Diet Drink, P.*
" " Veronique—*Veronica* " *P.*

Tisane de Casse—*Purging Flax Diet Drink, P.*—Take of purging-flax, in sticks, 64 parts; warm water 1,000 parts. Open the flax longitudinally, and dissolve out the pulp; strain through a sieve.—*Paris Codex.*

Tisane de Chiendent—*Couch-grass Diet Drink, P.*—Take of couch-grass-root 32 parts; liquorice-root 12 parts. Wash the root with cold water; bruise it in a marble mortar; boil it for half an hour

in enough water to obtain 1,000 parts; then add the liquorice-root, bruised, and infuse for an hour; strain.—*Paris Codex.*

Tisane de Fruits Pectoraux—*Pectoral Diet Drink, P.*—Take of pectoral fruits 64 parts. Remove all the stones, and boil for an hour in sufficient water to produce 1,000 parts when strained.—*Paris Codex.*

In the same manner prepare

Tisane de Pruneaux—*Prune Diet Drink, P.*
" Dattes—*Date* " *P.*
" Jujubes—*Jujube* " *P.*

Tisane de Bois de Gayac—*Guaiacum Diet Drink, P.*—Take of rasped guaiacum-wood 32 parts; liquorice-root 12 parts. Boil the guaiacum-wood for an hour in sufficient water to obtain 1,000 parts when finished; then add the liquorice-root, and infuse for an hour; strain, allow it to deposit, and decant.—*Paris Codex.*

Tisane de Gomme—*Gum Diet Drink, P.*—Take of gum arabic 16 parts; cold water 1,000 parts. Wash the gum first with cold water, and then dissolve it in the quantity ordered.—*Paris Codex.*

Tisane d'Orge—*Barley Diet Drink, P.*—Take of barley, washed with cold water, 20 parts; liquorice-root 12 parts. Boil the barley for some time in sufficient water to produce 1,000 parts; then infuse the liquorice-root, and strain.—*Paris Codex.*

In the same manner prepare

Tisane de Riz—*Rice Diet Drink, P.*
" Gruau—*Oatmeal Diet Drink, P.*

Tisane de Racine de Polygala de Virginie—*Senega Root Diet Drink, P.*—Take of senega-root 8 parts; boiling water 1,000 parts. Infuse during two hours; then strain.—*Paris Codex.*

In the same manner prepare

Tisane de Racine de Quassia Amara—*Quassia Root Diet Drink, P.*
Tisane de Racine de Sassafras—*Sassafras Root Diet Drink, P.*
" " Valériane—*Valerian* " *P.*

Tisane de Tamarin—*Tamarind Diet Drink, P.*—Take of tamarind pulp of commerce 32 parts; boiling water 1,000 parts. Mix the tamarinds with the water, infuse for an hour, and pass through a sieve.—*Paris Codex.*

Tisane de Fleurs de Tilleul—*Lime Flower Diet Drink, P.*—Take of dried lime flowers 8 parts; boiling water 1,000 parts. Infuse for half an hour, and strain.—*Paris Codex.*

In the same manner prepare

Tisane de Fleurs de Bouillon Blanc—*Petty Mullein Flower Diet Drink, P.*

Tisane de Fleurs de Petite Centaurée—*Lesser Centaury Diet Drink, P.*

Tisane de Fleurs de Guimauve—*Marshmallow Diet Drink, P.*
" " Roses Rouge—*French Rose* " *P.*
" " Tussilage—*Coltsfoot* " *P.*
" " Violette—*Violet* " *P.*

Lozenges or Troches.

Trochisci Acaciæ—*Lozenges of Gum Arabic, E.*—Take of gum arabic 4 ounces; starch 1 ounce; pure sugar 1 pound. Mix and pulverize them, and make them into a proper mass with rose-water for forming lozenges.—*Edinburgh.*

Tablettes de Gomme Arabique—*Lozenges of Gum Arabic, P.*—Take of gum arabic, in powder, 500 parts; sugar, in powder, 1,500 parts; orange-flower-water 64 parts. Make a mucilage with half the gum and the orange-flower-water, then add the rest of the gum and the sugar, previously mixed, and form into lozenges of sixteen grains each.—*Paris Codex.*

Trochisci Acidi Tartarici—*Lozenges of Tartaric Acid, E.*—Take of tartaric acid 2 drachms; pure sugar 8 ounces; volatile oil of lemons 10 minims. Pulverize the sugar and acid, add the oil, mix them thoroughly, and with mucilage beat them into a proper mass for making lozenges.—*Edinburgh.*

Tablettes Antimoniales de Kunkel—*Kunkels Antimonial Lozenges, P.*—Take of sweet almonds 64 parts; white sugar 407 parts; cardamom seeds, in powder, 32 parts; cinnamon, in powder, 16 parts; sulphuret of antimony, in impalpable powder, 32 parts; mucilage of gum tragacanth Q.S. Blanch the almonds, reduce them to powder with the aid of the sugar, add the powders, mix very carefully, and form into a mass with the mucilage; divide into lozenges of eighteen grains.—*Paris Codex.*

Tablettes de Baume de Tolu—*Tolu Lozenges, P.*—Take of balsam of tolu 32 parts; sugar 500 parts; gum tragacanth 5 parts; rectified spirit 32 parts; distilled water 64 parts. Dissolve the balsam of tolu in the spirit; add the distilled water; and heat for a short time in a water-bath; filter; make a mucilage with the gum tragacanth, and form into a mass, to be divided into lozenges of sixteen grains each.—*Paris Codex.*

Tablettes de Bicarbonate de Soude—*Lozenges of Bicarbonate of Soda, P.*—Take of bicarbonate of soda 32 parts; sugar 600 parts; mucilage of gum tragacanth Q.S. Prepare as above, and form into lozenges of twenty grains each.—*Paris Codex.*

Tablettes de Cachou—*Lozenges of Catechu, P.*—Take of extract of catechu 125 parts; white sugar 500 parts; mucilage of gum tragacanth Q.S. Prepare as usual, and form into lozenges of twelve grains each.—*Paris Codex.*

Tablettes de Cachou et de Magnésie—*Lozenges of Catechu and Magnesia, P.*—Take of pure magnesia 64 parts; catechu, in powder, 32 parts; sugar, in powder, 407 parts; mucilage of gum tragacanth prepared with cinnamon-water Q.S. Prepare as usual, and form into lozenges of sixteen grains each.—*Paris Codex.*

Tablettes de Charbon—*Lozenges of Charcoal, P.*—Take of wood charcoal 125 parts; white sugar 375 parts; mucilage of gum tragacanth Q.S. Prepare as usual, and form into lozenges of sixteen grains each.—*Paris Codex.*

Trochisci Cretæ—*Lozenges of Chalk, E.*—Take of prepared chalk 4 ounces; gum arabic 1 ounce; nutmeg 1 drachm; pure sugar 6 ounces. Reduce them to powder, and beat them with a little water into a proper mass for making lozenges.—*Edinburgh.*

Trochisci Cretæ—*Troches of Chalk, U.S.*—Take of prepared chalk 4 ounces; gum arabic, in powder, an ounce; nutmeg, in powder, a drachm; sugar, in powder, 6 ounces. Rub them together until they are intimately mixed; then with water form them into a mass, to be divided into troches, each weighing ten grains.—*United States.*

Tablettes d'Eponges Torréfiées—*Lozenges of Burnt Sponge, P.*—Take of sponge, burnt and powdered, 125 parts; white sugar 375 parts; mucilage of gum tragacanth prepared with cinnamon-water Q.S. Prepare as usual, and form into pills of twelve grains each.—*Paris Codex.*

Tablettes de Fer—*Lozenges of Iron, P.*—Take of oxide of iron, finely levigated, 32 parts; white sugar 320 parts; cinnamon, in powder, 8 parts; mucilage of gum tragacanth Q.S. Prepare as usual, and form into lozenges of twelve grains each.—*Paris Codex.*

Tablettes de Guimauve—*Lozenges of Marshmallow, P.*—Take of marshmallow-root, in powder, 64 parts; white sugar 436 parts; mucilage of gum tragacanth prepared with orange-flower-water Q.S. Prepare as usual, and form into lozenges of sixteen grains each.—*Paris Codex.*

Trochisci Glycirrhizæ—*Lozenges of Liquorice, E.*—Take of extract of liquorice and gum arabic, each, 6 ounces; pure sugar 1 pound. Dissolve them in a sufficiency of boiling water; and then concentrate the solution over the vapour-bath to a proper consistence for making lozenges.—*Edinburgh.*

Trochisci Glycyrrhizæ et Opii—*Troches of Liquorice and Opium, U.S.*—Take of opium, in powder, half an ounce; liquorice, in powder, sugar, in powder, gum arabic, in powder, each, 10 ounces; oil of anise 2 fluidrachms. Mix the powders intimately, then add the oil of anise, and with water form them into a mass, to be divided into troches, each weighing six grains.—*United States.*

Trochisci Ipecacuanhæ—*Troches of Ipecacuanha, U.S.*—Take of ipecacuanha, in powder, half an ounce; sugar, in powder, 14 ounces; arrowroot, in powder, 4 ounces; mucilage of tragacanth a sufficient quantity. Mix the powders intimately, and with the mucilage form them into a mass, to be divided into troches, each weighing ten grains.—*United States.*

Tablettes d'Ipécacuanha—*Lozenges of Ipecacuanha, P.*—Take of ipecacuanha, in powder, 32 parts; finest sugar, in powder, 1,470 parts; mucilage of gum tragacanth prepared with orange-flower-water Q.S. Mix the ipecacuanha and sugar; add the mucilage, and knead with the hand, to form into a proper paste; divide into lozenges of twelve grains each.—*Paris Codex.*

Tablettes d'Ipécacuanha au Chocolat—*Lozenges of Ipecacuanha with Chocolate, P.*—Take of ipecacuanha, in powder, 32 parts; vanilla chocolate 375 parts. Liquefy the chocolate with a gentle heat and incorporate therein the ipecacuanha, in powder, and form into lozenges of two grains each.—*Paris Codex.*

Tablettes de Kermès Mineral—*Lozenges of Kermes Mineral, P.*—Take of kermes mineral 8 parts; white sugar 532 parts; gum arabic 32 parts; orange-flower-water 32 parts. Form into lozenges of twelve grains each, and preserve in well-stopped bottles.—*Paris Codex.*

Trochisci Lactucarii—*Lozenges of Lactucarium, E.*—To be prepared with lactucarium in the same proportion and in the same manner as the opium lozenge.—*Edinburgh.*

Tablettes de Lichen d'Islande—*Lozenges of Iceland Moss, P.*—Take of dried jelly of Iceland moss 500 parts; white sugar, powdered, 1,000 parts; gum arabic, powdered, 48 parts; water Q.S. Make a mucilage with the water and gum; add the other things, and beat the whole in a mortar into a uniform mass; divide into lozenges of sixteen grains each.—*Paris Codex.*

Trochisci Magnesiæ—*Lozenges of Magnesia, E.*—Take of carbonate of magnesia 6 ounces; pure sugar 3 ounces; nutmeg 1 scruple. Pulverize them, and with mucilage of tragacanth beat them into a proper mass for making lozenges.—*Edinburgh.*

Trochisci Magnesiæ—*Troches of Magnesia, U.S.*—Take of magnesia 4 ounces; sugar a pound; nutmeg, in powder, a drachm; mucilage of tragacanth a sufficient quantity. Rub the magnesia, sugar, and nutmeg together, until they are thoroughly mixed; then with the mucilage form them into a mass, to be divided into troches, each weighing ten grains.—*United States.*

Tablettes de Manne—*Lozenges of Manna, P.*—Take of manna 64 parts; sugar, in powder, 439 parts; gum tragacanth 2 parts; orange-flower-water 32 parts. Triturate the manna with the sugar until it is thoroughly divided, and make the mixture into a paste with the mucilage; form into lozenges of sixteen grains each.—*Paris Codex.*

Trochisci Morphiæ—*Lozenges of Morphia, E.*—Take of muriate of morphia 1 scruple; tincture of tolu half an ounce; pure sugar 25 ounces. Dissolve the muriate of morphia in a little hot water; mix it and the tincture of tolu with the sugar; and with a sufficiency of mucilage form a proper mass for making lozenges, each of which should weigh about fifteen grains.—*Edinburgh.*

Trochisci Morphiæ et Ipecacuanhæ—*Lozenges of Morphia and Ipecacuanha, E.*—Take of muriate of morphia 1 scruple; ipecacuan, in fine powder, 1 drachm; tincture of tolu half a fluid ounce; pure sugar 25 ounces. Dissolve the muriate in a little hot water; mix it with the tincture and the ipecacuan and sugar; and with a sufficiency of mucilage beat the whole into a proper mass, which is to be divided into fifteen-grain lozenges.—*Edinburgh.*

Trochisci Menthæ Piperitæ—*Troches of Peppermint, U.S.*—Take of oil of peppermint a fluidrachm; sugar, in powder, a pound; mucilage of tragacanth a sufficient quantity. Rub the oil of peppermint with the sugar until they are thoroughly mixed; then with the mucilage form them into a mass, to be divided into troches, each weighing ten grains.—*United States.*

Tablettes de Menthæ Poivrée—*Lozenges of Peppermint, P.*—Take of white sugar 500 parts; essence of peppermint 4 parts; mucilage of gum tragacanth prepared with peppermint-water Q.S. Prepare as usual, adding the oil of peppermint the last thing; form into lozenges of twelve grains each.—*Paris Codex.*

Tablettes de Mercure Doux—*Lozenges of Calomel, P.*—Take of protochloride of mercury 32 parts; white sugar 350 parts; mucilage of gum tragacanth Q.S. Prepare as usual, and form into pills of twelve grains each.—*Paris Codex.*

Trochisci Opii—*Lozenges of Opium, E.*—Take of opium 2 drachms; tincture of tolu half an ounce; pure sugar, in fine powder, 6 ounces; powder of gum arabic, and extract of liquorice, of each, 5 ounces. Reduce the opium to a fluid extract by formula for Extractum Opii, P. E.; mix it intimately with the liquorice, previously reduced to the consistence of treacle; add the tincture; sprinkle the gum and sugar into the mixture, and beat it into a proper mass, which is to be divided into lozenges of ten grains.—*Edinburgh.*

Tablettes de Quinquina—*Lozenges of Bark, P.*—Take of crown bark, in powder, 64 parts; cinnamon, in powder, 8 parts; white sugar 429 parts; mucilage of gum tragacanth Q.S. Prepare as usual, and divide into lozenges of sixteen grains each.—*Paris Codex.*

Tablettes de Rhubarbe—*Lozenges of Rhubarb, P.*—Take of rhubarb, in powder, 32 parts; white sugar 346 parts; mucilage of gum tragacanth Q.S. Prepare as usual, and make in twelve-grain lozenges.—*Paris Codex.*

Trochisci Sodæ Bicarbonatis—*Lozenges of Bicarbonate of Soda, E.*—Take of bicarbonate of soda 1 ounce; pure sugar 3 ounces; gum arabic half an ounce. Pulverize them, and, with mucilage, beat them into a proper mass for making lozenges.—*Edinburgh.*

Tablettes de Soufre—*Lozenges of Sulphur, P.*—Take of washed sulphur 64 parts; sugar, in powder, 500 parts; mucilage of gum tragacanth, with rose-water, Q.S. Prepare as usual, and form into eighteen-grain lozenges.—*Paris Codex.*

Tablettes de Suroxalate de Potasse—*Lozenges of Superoxalate of Potash, P.*—Take of superoxalate of potash, finely levigated, 12 parts; very white sugar, in powder, 500 parts; mucilage of gum tragacanth Q. S.; essential oil of lemon 1 part. Prepare as usual, and form into twelve-grain lozenges. Keep in well-stoppered bottles.—*Paris Codex.*

In the same manner prepare

Tablettes d'Acide Tartrique—*Lozenges of Tartaric Acid, P.*
" " Citrique " *Citric* " *P.*

Ointments, Pomades, &c.

Unguentum Acidi Sulphurici—*Ointment of Sulphuric Acid, D.*—Take of sulphuric acid a drachm; prepared hogslard an ounce. Mix.—*Dublin.*

Unguentum Æruginis—*Ointment of Verdigris, E.*—Take of resinous ointment 15 ounces; verdigris, in fine powder, 1 ounce. Melt the ointment, sprinkle into it the powder of verdigris, and stir the mixture briskly as it cools and concretes.—*Edinburgh.*

Unguentum Æruginis—*Ointment of Verdigris, D.*—Take of ointment of white wax a pound; prepared verdigris half an ounce. Make them into an ointment.—*Dublin.*

Unguentum Antimonii Potassio-Tartratis—*Ointment of Potassio-Tartrate of Antimony, L.*—Take of potassio-tartrate of antimony, rubbed to powder, an ounce; lard 4 ounces. Mix.—*London.*

Unguentum Antimoniale—*Antimonial Ointment, E.*—Take of axunge 4 ounces; tartar emetic, in very fine powder, 1 ounce. Triturate them carefully together into a smooth and uniform mass.—*Edinburgh.*

Unguentum Tartari Emetici—*Tartar Emetic Ointment, D.*—Take of tartrate of antimony and potassa a drachm; prepared lard an ounce. Rub the salt into a fine powder, then add it to the lard, and mix.—*Dublin.*

Unguentum Antimonii—*Antimonial Ointment, U.S.*—Take of tartrate of antimony and potassa, in very fine powder, 2 drachms; lard an ounce. Mix them.—*United States.*

Pommade Stibiée—*Antimonial Pomade, P.*—Take of tartar emetic 4 parts; lard 12 parts. Mix carefully.—*Paris Codex.*

Onguent d'Althœa—*Marshmallow Ointment, P.*—Take of oil of fœnugneek 1,000 parts; yellow wax 250 parts; resin (resina pini) 125 parts; turpentine 125 parts. Melt the wax and the resin in the oil, then add the turpentine, and strain through linen. Stir with a wooden spatula until it is cold.—*Paris Codex.*

Pommade Antipsorée—*Antipsoric Pomade, P.*—Take of lard 500 parts; sublimed and washed sulphur 250 parts; powdered hydrochlorate of ammonia 16 parts; powdered alum 16 parts. Mix with care.—*Paris Codex.*

Unguentum Aquæ Rosæ—*Ointment of Rose-water, U.S.*—Take of rose-water, oil of almonds, each, 2 fluid ounces; spermaceti half an ounce; white wax a drachm. Melt together, by means of a water-bath, the oil, spermaceti, and wax; then add the rose-water. Stir the mixture constantly until it is cold.—*United States.*

Onguent Basilicum—*Basilicon Ointment, P.*—Take of black pitch 64 parts; colophane 64 parts; yellow wax 64 parts; olive oil 250 parts. Liquefy the pitch and colophane with a gentle heat in a copper vessel; add the wax, and, when that is melted, the olive oil. Strain, and agitate until the ointment is quite cold.—*Paris Codex.*

Unguentum Cantharidis—*Ointment of Cantharides, L.*—Take of cantharides, rubbed to very fine powder, an ounce; distilled water 4 fluid ounces; cerate of resin 4 ounces. Boil down the water with the cantharides to half, and strain. Mix the cerate with the strained liquor; afterwards let it evaporate to a proper consistence.—*London.*

Unguentum Cantharidis—*Ointment of Cantharides, E.*—Take of resinous ointment 7 ounces; cantharides, in very fine powder, 1 ounce. Melt the ointment; sprinkle into it the cantharides powder; and stir the mixture briskly as it concretes on cooling.—*Edinburgh.*

Unguentum Infusi Cantharidis—*Ointment of Infusion of Cantharides, E.*—Take of cantharides, in moderately fine powder, resin, and beeswax, of each, 1 ounce; Venice turpentinæ and axunge, of each, 2 ounces; boiling water 5 fluid ounces. Infuse the cantharides in the water for one night; squeeze strongly, and filter the expressed liquid. Add the axunge, and boil till the water is dispersed; then add the wax and resin; and, when these have become liquid, remove the vessel from the fire, add the turpentine, and mix the whole thoroughly.—*Edinburgh.*

Unguentum Cantharidis—*Ointment of Blistering Flies, D.*—Take of ointment of yellow wax half a pound; blistering flies, in powder, 1 ounce. Form them into an ointment.—*Dublin.*

Unguentum Cantharidis—*Ointment of Spanish Flies, U.S.*—Take of Spanish flies, in powder, 2 ounces; distilled water half a pint; resin cerate 8 ounces. Boil down the water with the Spanish flies to one half, and strain; then mix the cerate with the strained liquor, and evaporate to the proper consistence.—*United States.*

Pommade Épispastique Verte—*Green Cantharides Pomade, P.*—Take of cantharides, in fine powder, 32 parts; poplar ointment 875 parts; white wax 125 parts. Liquefy the wax and ointment with a gentle ; add the cantharides, and agitate until it is cold.—*Paris Codex.*

Pommade de Carbonate de Plomb—*Carbonate of Lead Pomade, P.*—Take of carbonate of lead 4 parts; lard 20 ounces. Mix.—*Paris Codex.*

Unguentum Ceræ Flavæ—*Ointment of Yellow Wax, D.*—Take of purified yellow wax, 142°, a pound; prepared hogslard, 97°, 4 pounds. Form them into an ointment.—*Dublin.*

Unguentum Ceræ Albæ—*Ointment of White Wax, D.*—This

is to be prepared in the same manner as the former, with the substitution of white for yellow wax.—*Dublin.*

Unguentum Cetacei—*Ointment of Spermaceti, L.*—Take of spermaceti 6 drachms; white wax 2 drachms; olive oil 3 fluid ounces. Being melted together with a slow fire, stir constantly until they become cold.—*London.*

Unguentum Cetacei—*Ointment of Spermaceti, D.*—Take of white wax half a pound; spermaceti a pound; prepared hogslard 3 pounds. Make them into an ointment.—*Dublin.*

Unguentum Creasoti—*Ointment of Creasote, L.*—Take of creasote half a fluidrachm; lard an ounce. Rub and mix them.—*London.*

Unguentum Creasoti—*Ointment of Creasote, E.*—Take of creasote 1 drachm; axunge 3 ounces. Melt the axunge, add the creasote, stir them briskly, and continue to do so as the mixture concretes on cooling.—*Edinburgh.*

Unguentum Creasoti—*Ointment of Creasote, U.S.*—Take of creasote half a fluidrachm; lard an ounce. Add the creasote to the lard, previously melted with a moderate heat, and stir them constantly till they are cold.—*United States.*

Unguentum Cocculi—*Ointment of Cocculus Indicus, E.*—Take any convenient quantity of cocculus indicus, separate and preserve the kernels, beat them well in a mortar, first alone and then with a little axunge; and then add axunge till it amounts altogether to five times the weight of the kernels.—*Edinburgh.*

Unguentum Cupri Subacetatis—*Ointment of Subacetate of Copper, U.S.*—Take of subacetate of copper, in fine powder, a drachm; simple ointment 15 drachms. Add the subacetate of copper to the ointment, previously melted with a moderate heat, and stir them constantly till they are cold.—*United States.*

Pommade de Cirillo—*Pomade of Cirillo, P.*—Take of corrosive sublimate 4 parts; lard 32 parts. Finely levigate the sublimate, add the lard, and mix very carefully.—*Paris Codex.*

Pommade de Desault—*Desault's Pomade, P.*—Take of red oxide of mercury 8 parts; prepared tutty 8 parts; acetate of lead 8 parts; burnt alum 8 parts; corrosive sublimate 1 part; rose pomade 64 parts. Mix very carefully.—*Paris Codex.*

Unguentum Elemi—*Ointment of Elemi, L.*—Take of elemi a pound; common turpentine 10 ounces; suet 2 pounds; olive oil 2 fluid ounces. Melt the elemi with the suet; then remove them from the fire, and immediately mix with them the turpentine and the oil; afterwards press through a linen cloth.—*London.*

Unguentum Elemi—*Ointment of Elemi, D.*—Take of elemi resin a pound; white wax half a pound; prepared hogslard 4 pounds. Form them into an ointment which is to be strained through a sieve while it is hot.—*Dublin.*

Onguent d'Arcœus—*Ointment of Elemi, P.*—Take of mutton suet 1,000 parts; turpentine 750 parts; gum elemi 750 parts; lard 500 parts. Liquefy the suet, lard, and gum resin, then add the turpentine, strain through linen, and stir until it is cold.—*Paris Codex.*

Pommade Épispatique au Garou—*Mezereon or Spurge Flax, or Blistering Pomade, P.*—Take of hogslard 452 parts; white wax 48 parts; mezereon bark, dried, 123 parts. Cut the bark transversely, bruise it in an iron mortar with a little spirit, until it is reduced to a fibrous mass; mix it with the lard, and digest in a water-bath for twelve hours; strain with strong pressure; allow it to cool slowly, separate the deposit, melt again with the wax, and stir until it becomes cold.—*Paris Codex.*

Pommade Épispastique Jaune—*Yellow Blistering Pomade, P.*—Take of cantharides, in coarse powder, 125 parts; hogslard 1,680 parts; yellow wax 250 parts; turmeric, in powder, 8 parts; essential oil of lemon 8 parts. Digest the cantharides in the lard in a water-bath from three to four hours at the temperature of boiling water, stirring occasionally; strain with strong pressure; then add the turmeric, and digest again; filter; melt then with the yellow wax, stir until it is almost cold, and then add the essential oil.—*Paris Codex.*

Unguentum Gallæ Compositum—*Compound Ointment of Gall, L.*—Take of galls, rubbed to very fine powder, 2 drachms; lard 2 ounces; hard opium, powdered, half a drachm. Mix.—*London.*

Unguentum Gallæ et Opii—*Ointment of Galls and Opium, E.*—Take of galls, in fine powder, 2 drachms; opium, in powder, 1 drachm; axunge 1 ounce. Triturate them together into a uniform mass.—*Edinburgh.*

Unguentum Gallæ—*Ointment of Galls, U.S.*—Take of galls, in powder, an ounce; lard 7 ounces. Mix them.—*United States.*

Pommade de Gondret—*Gondret's Pomade, P.*—Take of suet 32 parts; hogslard 32 parts; liquor of ammonia 64 parts. Melt the suet and lard in a wide-mouth bottle, add the ammonia, close the bottle, and shake briskly; place the bottle in cold water, agitating occasionally until the pomade ha become cold.—*Paris Codex.*

Unguentum Hydrargyri Fortius—*Stronger Ointment of Mercury, L.*—Take of mercury 2 pounds; lard 23 ounces; suet an ounce. First rub the mercury with the suet and a little of the lard until globules can be no longer seen; then add that which is left of the lard, and mix.—*London.*

Unguentum Hydrargyri Mitius—*Milder Ointment of Mercury, L. and D.*—Take of the stronger ointment of mercury a pound; lard 2 pounds. Mix.—*London and Dublin.*

Unguentum Hydrargyri—*Ointment of Mercury, E.*—Take of mercury 2 pounds; axunge 23 ounces; suet 1 ounce. Triturate the mercury with the suet and a little of the axunge till globules are no longer visible, then add the rest of the axunge, and mix the whole thoroughly. This ointment is not well prepared so long as metallic globules may be seen in it with a magnifier of four powers.

The mercurial ointment with the proportions here directed may be diluted at pleasure with twice or thrice its weight of axunge.—*Edinburgh.*

Unguentum Hydrargyri—*Ointment of Mercury, D.*—Take of purified mercury, prepared hogslard, equal parts. Rub them together in a marble or an iron mortar until the globules disappear.—*Dublin.*

Unguentum Hydrargyri—*Mercurial Ointment, U.S.*—Take of mercury 2 pounds; lard 23 ounces; suet an ounce. Rub the mercury with the suet and a small portion of the lard until the globules disappear; then add the remainder of the lard, and mix.—*United States.*

Pommade Mercurielle—*Mercurial Pomade, P.*—Take of mercury 500 parts; hogslard 500 parts. Rub the mercury with a quarter of the lard in a marble or iron mortar until the globules disappear, then add the rest of the lard, and mix.—*Paris Codex.*

Pommade Mercurielle Simple—*Milder Mercurial Pomade, P.*—Take of mercurial pomade 125 parts; lard 375 parts. Mix.—*Paris Codex.*

Unguentum Hydrargyri Ammonio-Chloridi—*Ointment of Ammonio-Chloride of Mercury, L.*—Take of ammonio-chloride of mercury a drachm; lard an ounce and a half. Add the ammonio-chloride of mercury to the lard, melted over a slow fire, and mix.—*London.*

Unguentum Precipitati Albi—*Ointment of White Precipitate, E.*—Take of white precipitate 2 drachms; axunge 3 ounces. Melt the axunge, add the white precipitate, and stir the mixture briskly while it concretes on cooling.—*Edinburgh.*

Unguentum Submuriatis Hydrargyri Ammoniati—*Ointment of Ammoniated Submuriate of Mercury, D.*—Take of prepared lard an ounce and a half; ammoniated submuriate of mercury a drachm. To the melted lard as it begins to cool add the submuriate, and mix.—*Dublin.*

Unguentum Hydrargyri Ammoniati—*Ointment of Ammoniated Mercury, U.S.*—Take of ammoniated mercury a drachm; simple ointment an ounce and a half. Add the ammoniated mercury to the ointment, previously softened over a gentle fire, and mix them.—*United States.*

Unguentum Hydrargyri Nitratis—*Ointment of Nitrate of Mercury, L.*—Take of mercury an ounce; nitric acid 11 fluidrachms; lard 6 ounces; olive oil 4 fluid ounces. First dissolve the mercury in the acid; then mix the solution, while hot, with the lard and oil melted together.—*London.*

Unguentum Citrinum—*Citrine Ointment, E.*—Take of pure nitric acid 8 fluid ounces and 6 fluidrachms; mercury 4 ounces; axunge 15 ounces; olive oil 32 fluid ounces. Dissolve the mercury in the acid with the aid of a gentle heat. Melt the axunge in the oil with the aid of a moderate heat in a vessel capable of holding six times the quantity; and, while the mixture is hot, add the solution of mercury, also hot, and mix them thoroughly. If the mixture do not froth up, increase the heat a little till this takes place. Keep this ointment in earthenware vessels, or in glass vessels secluded from the light.—*Edinburgh.*

Unguentum Nitratis Hydrargyri—*Ointment of Supernitrate of Mercury, D.*—Take of purified mercury an ounce; nitric acid 11½ drachms; olive oil 1 pint; hogslard 4 ounces. Dissolve the mercury in the acid; then mix the solution with the oil and lard, previously melted together, and form an ointment in the same manner as the ointment of nitrous acid.—*Dublin.*

Unguentum Hydrargyri Nitratis—*Ointment of Nitrate of Mercury (Citrine Ointment), U.S.*—Take of mercury an ounce; nitric acid 11 fluidrachms; fresh neatsfoot oil 9 fluid ounces; lard 3 ounces. Dissolve the mercury in the acid; then melt the oil and lard together, and, when they begin to stiffen upon cooling, add the solution, and mix.—*United States.*

Pommade Citrine—*Citrine Pomade, P.*—Take of lard 250 parts; olive oil 250 parts; mercury 32 parts; nitric acid, sp. gr. 1,300, 48 parts. Dissolve the mercury in the acid with the aid of a gentle heat; melt the lard in the oil, and, when they begin to stiffen on cooling, add the mercurial solution, and mix.—*Paris Codex.*

Unguentum Hydrargyri Nitrico-Oxydi—*Ointment of Nitric Oxide of Mercury, L.*—Take of nitric oxide of mercury an ounce; white

wax 2 ounces; lard 6 ounces. Add the nitric oxide of mercury, rubbed to very fine powder, to the wax and lard, melted together, and mix.—*London.*

Unguentum Oxidi Hydrargyri—*Ointment of Oxide of Mercury, E.*—Take of red oxide of mercury 1 ounce; axunge 8 ounces. Triturate them into a uniform mass.—*Edinburgh.*

Unguentum Hydrargyri Oxydi Nitrici—*Ointment of Nitric Oxide of Mercury, D.*—Take of prepared lard 6 ounces; white wax 2 ounces; nitric oxide of mercury an ounce. Form them into an ointment.—*Dublin.*

Unguentum Hydrargyri Oxidi Rubri—*Ointment of Red Oxide of Mercury, U.S.*—Take of red oxide of mercury, in very fine powder, an ounce; simple ointment 8 ounces. Add the oxide of mercury to the ointment, previously softened over a gentle fire, and mix them.—*United States.*

Onguent Brun—*Brown Ointment, P.*—Take of basilicon ointment 64 parts; deutoxide of mercury 4 parts. Finely levigate the mercury; add then by degrees the ointment, and mix thoroughly.—*Paris Codex.*

Unguentum Hydrargyri Iodidi—*Ointment of Iodide of Mercury ,L.*—Take of iodide of mercury an ounce; white wax 2 ounces; lard 6 ounces. Add the iodide of mercury to the wax and lard melted together, and mix.—*London.*

Unguentum Hydrargyri Biniodidi—*Ointment of Biniodide of Mercury, L.*—Take of biniodide of mercury an ounce; white wax 2 ounces; lard 6 ounces. Add the biniodide of mercury to the wax and lard melted together, and mix.—*London.*

Unguentum Iodinii—*Ointment of Iodine, D.*—Take of iodine a scruple; prepared lard an ounce. Rub them together to make an ointment.—*Dublin.*

Unguentum Iodini—*Ointment of Iodine, U.S.*—Take of iodine 20 grains; alcohol 20 minims; lard an ounce. Rub the iodine first with the alcohol and then with the lard until they are thoroughly mixed.—*United States.*

Unguentum Iodinii Compositum — *Compound Ointment of Iodine, L.*—Take of iodine half a drachm; iodide of potassium a drachm; rectified spirit a fluidrachm; lard 2 ounces. First rub the iodine and iodide of potassium with the spirit, then mix with the lard.—*London.*

Unguentum Iodinei—*Ointment of Iodine, E.*—Take of iodine 1 drachm; iodide of potassium 2 drachms; axunge 4 ounces. Triturate the iodine and iodide together, and then add gradually the axunge, continuing the trituration till a uniform ointment be obtained.—*Edinburgh.*

Unguentum Iodini Compositum—*Compound Ointment of Iodine, U.S.*—Take of iodine half a drachm; iodide of potassium a drachm; alcohol a fluidrachm; lard 2 ounces. Rub the iodine and iodide of potassium first with the alcohol and then with the lard until they are thoroughly mixed.—*United States.*

Pommade Iodurée—*Pomade of Iodine, P.*—Take of iodine 4 parts; iodide of potassium 12 parts; lard 96 parts. Triturate the iodine with the iodide of potassium, and mix with the lard.—*Paris Codex.*

Pommade de Laurier—*Laurel Pomade, P.*—Take of fresh laurel leaves 500 parts; laurel berries 500 parts; lard 1,000 parts. Bruise the leaves and berries, and heat them with the lard over a moderate fire until all moisture is dissipated; strain with strong pressure; allow it to cool slowly; separate the deposit, and melt again.—*Paris Codex.*

Unguentum Mezerei—*Ointment of Mezereon, U.S.*—Take of mezereon, sliced transversely, 4 ounces; lard 14 ounces; white wax 2 ounces. Moisten the mezereon with a little alcohol, and beat it in an iron mortar until reduced to a fibrous mass; then digest it with the lard in a salt water-bath for twelve hours; strain with strong expression, and allow the strained liquor to cool slowly, so that any undissolved matters may subside. From these separate the medicated lard, melt it with the wax at a moderate heat, and stir them constantly till they are cold.—*United States.*

Pommade Nitrique—*Pomade of Nitric Acid, P.*—Take of hogs-lard 500 parts; nitric acid, about sp. gr. 1,300, 64 parts. Melt the lard in an earthen pan, add the nitric acid, and heat with continued stirring until bubbles of nitrous gas are disengaged; withdraw from the fire, and continue stirring until it becomes cold.—*Paris Codex.*

Pommade Nutritum— *Pomade, P.*—Take of levigated lytharge 96 parts; oil 282 parts; white wine vinegar 125 parts. Place all the ingredients in a glazed earthenware vessel, and heat gently with constant stirring until the mixture has acquired the consistence of a soft ointment.

This should only be prepared when required, as it quickly becomes hard.—*Paris Codex.*

Unguentum Picis Liquidæ—*Ointment of Liquid Pitch (Tar), L.*—Take of tar, suet, each, a pound. Melt them together, and press through a linen cloth.—*London.*

Unguentum Picis Liquidæ—*Ointment of Tar, E.*—Take of tar 5 ounces; beeswax 2 ounces. Melt the wax with a gentle heat, add the tar, and stir the mixture while it concretes on cooling.—*Edinburgh.*

Unguentum Picis Liquidæ—*Tar Ointment, D.*—Take of tar, mutton suet, of each, half a pound. Melt them together, and strain them through a sieve.—*Dublin.*

Unguentum Picis Liquidæ—*Tar Ointment, U.S.*—Take of tar, suet, each, a pound. Add the tar to the suet, previously melted with a moderate heat, and stir them constantly till they are cold.—*United States.*

Unguentum Picis Nigræ—*Ointment of Black Pitch, L.*—Take of black pitch, wax, resin, each, 9 ounces; olive oil 16 fluid ounces. Melt them together, and press through a linen cloth.—*London.*

Unguentum Piperis Nigri—*Ointment of Black Pepper, D.*—Take of prepared hogslard a pound; black pepper, in powder, 4 ounces. Form them into an ointment.—*Dublin.*

Unguentum Plumbi Compositum—*Compound Ointment of Lead, L.*—Take of prepared chalk 8 ounces; distilled vinegar 6 fluid ounces; plaster of lead 3 pounds; olive oil a pint. Melt the plaster in the oil with a slow fire; then gradually add the chalk, separately mixed with vinegar, the effervescence being finished, and stir them constantly until they are cooled.—*London.*

Unguentum Plumbi Acetatis—*Ointmenl of Acetate of Lead, E.*—Take of simple ointment 20 ounces; acetate of lead, in fine powder, 1 ounce. Mix them thoroughly.—*Edinburgh.*

Unguentum Plumbi Acetatis—*Ointment of Acetate of Lead, D.*—Take of ointment of white wax a pound and a half; acetate of lead an ounce. Make them into an ointment.—*Dublin.*

Unguentum Plumbi Carbonatis—*Ointment of Carbonate of Lead, E.*—Take of simple ointment 5 ounces; carbonate of lead 1 ounce. Mix them thoroughly.—*Edinburgh.*

Unguentum Plumbi Carbonatis—*Ointment of Carbonate of Lead, U.S.*—Take of carbonate of lead, in very fine powder, 2 ounces; simple ointment a pound. Add the carbonate of lead to the ointment, previously softened over a gentle fire, and mix them.—*United States.*

Unguentum Plumbi Iodidi—*Ointment of Iodide of Lead, L.*—Take of iodide of lead an ounce; lard 8 ounces. Rub together, and mix.—*London.*

Unguentum Potassæ Hydriodatis—*Ointment of Hydriodate of Potassa, D.*—Take of hydriodate a scruple; prepared lard an ounce. Rub them together to make an ointment.—*Dublin.*

Pommade Hydriodatée—*Pomade of Hydriodate of Potassa, P.*—Take of hydriodate 4 parts; fresh hogslard 32 parts. Mix.—*Paris Codex.*

In the same manner prepare

Pommade d'Iodure de Plomb—*Pomade of Iodide of Lead, P.*

Pommade de Phosphore—*Pomade of Phosphorus, P.*—Take of phosphorus 4 parts; hogslard 200 parts. Place the lard in a wide-mouth stopped bottle; add the phosphorus, and place the bottle in a water-bath, taking care to put in the stopper so that an outlet may be left for the heated air; heat the bath to boiling point; then stopper tightly the bottle, and agitate briskly until the phosphorus is dissolved; remove the bottle from the bath, and shake until it is cold.—*Paris Codex.*

Pommade ou Ongent Populeum—*Poplar Ointment, P.*—Take of dried buds of poplar 375 parts; fresh leaves of poppy 250 parts; fresh leaves of belladonna 250 parts; fresh leaves of henbane 250 parts; fresh leaves of common nightshade 250 parts; hogslard 2,000 parts. Bruise the plants in a marble mortar, put them into a pan with the lard, and heat until all the moisture is dissipated; add then the poplar buds, bruised, and digest for twenty-four hours; strain with strong pressure; allow it to cool; separate the deposit; and melt again, to pour into proper vessels.— *Paris Codex.*

Pommade de Régent—*Regent's Pomade, P.*—Take of butter, washed with rose-water, 216 parts; camphor 1 part; red oxide of mercury 12 parts; acetate of lead 12 parts. Levigate carefully the oxide of mercury and salt of lead; add the camphor in powder, then the butter, and mix with extreme care.—*Paris Codex.*

Pommade Rosat—*Rose Pomade, P.*—Take of lard, washed several times with rose-water, 1,000 parts; hundred-leaved rose petals 2,000 parts; alkanet-root 32 parts. Bruise half the flowers, mix them with the lard, cold, and let the mixture remain two days; then melt with a gentle heat, and strain with strong pressure, When the pomade has cooled, mix with it the other half of the flowers, likewise bruised; after twenty-four hours, melt, and strain as before. Colour the pomade by digesting in it the alkanet-root. Strain; allow it to cool slowly; separate the deposit; melt again, and pour, when partly cold, into proper vessels.—*Paris Codex.*

Unguentum Resinosum—*Resinous Ointment, E.*—Take of resin 5 ounces; axunge 8 ounces; beeswax 2 ounces. Melt them together with a gentle heat, and then stir the mixture briskly while it cools and concretes.—*Edinburgh.*

UNGUENTUM SAMBUCI—*Ointment of Elder, L.*—Take of elder flowers, lard, each, 2 pounds. Boil the elder flowers in the lard until they become crisp; then press through a linen cloth.—*London.*

UNGUENTUM SAMBUCI—*Ointment of Elder, D.*—Take of fresh elder flowers 3 pounds; prepared hogslard 4 pounds; mutton suet 2 pounds. Make an ointment of these in the manner directed for the preparation of the savine ointment.—*Dublin.*

UNGUENTUM SIMPLEX—*Simple Ointment, E.*—Take of olive oil 5 fluid ounces; white wax 2 ounces. Melt the wax in the oil, and stir the mixture briskly while it cools and concretes.—*Edinburgh.*

UNGUENTUM SIMPLEX—*Simple Ointment, U.S.*—Take of white wax a pound; lard 4 pounds. Melt them together with a moderate heat, and stir them constantly till they are cold.—*United States.*

UNGUENTUM SULPHURIS—*Ointment of Sulphur, L.*—Take of sulphur 3 ounces; lard half a pound; oil of bergamot 20 minims. Mix.—*London.*

UNGUENTUM SULPHURIS—*Ointment of Sulphur, E.*—Take of axunge 4 ounces; sublimed sulphur 1 ounce. Mix them thoroughly together.—*Edinburgh.*

UNGUENTUM SULPHURIS—*Sulphur Ointment, D.*—Take of prepared hogslard 4 pounds; sublimed sulphur 1 pound. Form them into an ointment.—*Dublin.*

UNGUENTUM SULPHURIS—*Ointment of Sulphur, U.S.*—Take of sulphur a pound; lard 2 pounds. Mix them.—*United States.*

POMMADE SOUFRÉE—*Sulphur Pomade, P.*—Take of sulphur, sublimed and washed, 125 parts; lard 375 parts. Mix.—*Paris Codex.*

UNGUENTUM SULPHURIS COMPOSITUM—*Compound Ointment of Sulphur, L.*—Take of sulphur half a pound; white hellebore, powdered, 2 ounces; nitrate of potash a drachm; soft soap half a pound; lard a pound and a half; oil of bergamot 30 minims. Mix.—*London.*

UNGUENTUM SULPHURIS COMPOSITUM—*Compound Sulphur Ointment, U.S.*—Take of sulphur an ounce; ammoniated mercury, benzoic acid, each, a drachm; oil of bergamot, sulphuric acid, each, a fluidrachm; nitrate of potassa 2 drachms; lard half a pound. To the lard, previously melted with a moderate heat, add the other ingredients, and stir them constantly till they are cold.—*United States.*

UNGUENTUM STRAMONII—*Ointment of Stramonium, U.S.*—Take of fresh stramonium leaves, cut into pieces, a pound; lard 3 pounds; yellow wax half a pound. Boil the stramonium leaves in the lard until they become friable; then strain them through linen. Lastly, add the wax previously melted, and stir them until they are cold.—*United States.*

ONGUENT DE STYRAX—*Ointment of Styrax, P.*—Take of nut oil 375 parts; liquid styrax 250 parts; colophany 500 parts; gum elemi 250 parts; yellow wax 250 parts. Melt the colophany, wax, and elemi with a very gentle heat, add the styrax, and, when it is melted, add the nut oil; strain through linen, and stir until it has become cold.—*Paris Codex.*

UNGUENTUM TABACI—*Tobacco Ointment, U.S.*—Take of fresh tobacco, cut in pieces, an ounce; lard a pound. Boil the tobacco in the lard over a gentle fire till it becomes friable; then strain through linen.—*United States.*

UNGUENTUM TUTIÆ—*Ointment of Tutty, D.*—Take of ointment of white wax 10 ounces; prepared tutty 2 ounces. Form them into an ointment.—*Dublin.*

POMMADE DE TUTHIE—*Pomade of Tutty, P.*—Take of finely levigated tutty 8 ounces; butter, washed with rose-water, 16 parts; rose ointment 16 parts. Mix thoroughly.—*Paris Codex.*

UNGUENTUM VERATRI—*Ointment of White Hellebore, L.*—Take of white hellebore, powdered, 2 ounces; lard 8 ounces; oil of lemons 20 minims. Mix.—*London.*

UNGUENTUM VERATRI—*Ointment of White Hellebore, U.S.*—Take of prepared hogslard a pound; white hellebore-root, in powder, 3 ounces. Make them into an ointment.—*Dublin.*

UNGUENTUM VERATRI ALBI—*Ointment of White Hellebore, U.S.*—Take of white hellebore, in powder, 2 ounces; oil of lemons 20 minims; lard 8 ounces. Mix them.—*United States.*

UNGUENTUM ZINCI—*Ointment of Zinc, L.*—Take of oxide of zinc an ounce; lard 6 ounces. Mix.—*London.*

UNGUENTUM ZINCI—*Ointment of Zinc, E.*—Take of simple liniment 6 ounces; oxide of zinc 1 ounce. Mix them thoroughly together.—*Edinburgh.*

UNGUENTUM ZINCI—*Zinc Ointment, D.*—Take of ointment of white wax a pound; oxide of zinc an ounce and a half. Make them into an ointment.—*Dublin.*

UNGUENTUM ZINCI OXYDI—*Ointment of Oxide of Zinc, U.S.*—Take of oxide of zinc an ounce; lard 6 ounces. Mix them.—*United States.*

WINES.

VIN D'ABSINTHE—*Wine of Wormwood, P.*—Take of dried leaves of wormwood 32 parts; white wine 1,000 parts; rectified spirit 32 parts. Cut the wormwood; sprinkle it with the alcohol, and macerate in the wine for two days; press and filter.—*Paris Codex.*

In the same manner prepare

VIN DE RACINE D'AUNÉE—*Wine of Elicampane, P.*

VINUM ALOËS—*Wine of Aloes, L.*—Take of aloes, rubbed to powder, 2 ounces; canella, powdered, 4 drachms; sherry wine 2 pints. Macerate for fourteen days, frequently shaking, and strain.—*London.*

VINUM ALOES—*Wine of Aloes, E.*—Take of socotrine, or East Indian aloes, an ounce and a half; cardamom seeds, ground ginger, in coarse powder, of each, a drachm and a half; sherry 2 pints. Digest for seven days, and strain through linen and calico.—*Edinburgh.*

VINUM ALOES—*Wine of Aloes, D.*—Take of socotrine aloes 4 ounces; canella alba an ounce; Spanish white wine 3 pints; proof spirit a pound. Let the aloes and the canella, separately reduced to powder, be mixed together, and pour on them the wine mixed with the spirit; then digest four fourteen days, with frequent agitation; and, lastly, strain the solution.—*Dublin.*

VINUM ALOËS—*Wine of Aloes, U.S.*—Take of aloes, in powder, an ounce; cardamom, bruised, ginger, bruised, each, a drachm; wine a pint. Macerate for fourteen days, with occasional agitation, and filter through paper.—*United States.*

VIN AMER SCILLITIQUE—*Bitter Wine of Squill, P.*—Take of crown bark 64 parts; winter bark 64 parts; lemon-peel 64 parts; swallow-wort bark 64 parts; angelica-root 16 parts; squill 16 parts; wormwood leaves 32 parts; melisa leaves 32 parts; juniper berries 16 parts; mace 16 parts; white wine 4,000 parts. Coarsely powder the barks, leaves, roots, and mace, put them into a mattras with the juniper berries whole, add the wine, and macerate for four days; strain and filter.—*Paris Codex.*

VIN ANTISCORBUTIQUE—*Antiscorbutic Wine, P.*—Take of horseradish 32 parts; fresh leaves of scurvy-grass 16 parts; cress 16 parts; water trefoil 16 parts; black mustard-seed 16 parts; hydrochlorate of ammonia 8 parts; white wine 1,000 parts; compound spirit of horseradish 16 parts. Cut the horseradish into thin slices, clean and cut the leaves, bruise the mustard-seed, and place all together with the ammonia in a mattras; add the wine and spirit of horseradish; keep the vessel well closed; allow it to macerate for eight days; strain through linen with pressure, and filter.—*Paris Codex.*

VIN AROMATIQUE—*Aromatic Wine, P.*—Take of aromatic species 125 parts; red wine 1,000 parts; vulnerary spirits 64 parts. Macerate the species for eight days in the wine; strain with pressure; filter, and add the spirits.—*Paris Codex.*

VIN CHALIBÉ—*Chalybeate Wine, P.*—Take of pure iron filings 32 parts; white wine 1,000 parts. Macerate for six days, shaking occasionally; decant, and filter.—*Paris Codex.*

VINUM COLCHICI—*Wine of Meadow Saffron, L.*—Take of meadow saffron cornus, dried, sliced, 8 ounces; sherry 2 pints. Macerate for fourteen days, and strain.—*London.*

VINUM COLCHICI—*Wine of Meadow Saffron, E.*—Take of colchicum bulb, dried and sliced, 8 ounces; sherry 2 pints. Digest for seven days, express strongly the residuum, and filter the liquors.—*Edinburgh.*

VINUM COLCHICI RADICIS—*Wine of Colchicum-root, U.S.*—Take of colchicum-root, well bruised, a pound; wine 2 pints. Macerate for fourteen days, with occasional agitation; then express strongly, and filter through paper.

Wine of colchicum-root may also be prepared by macerating as above, then transferring to an apparatus for displacement, and, after the liquor has ceased to pass, pouring so much wine upon the residue that the filtered liquor obtained may measure two pints.—*United States.*

VINUM COLCHICI SEMINIS—*Wine of Colchicum-seed, U.S.*—Take of colchicum-seed, bruised, 4 ounces; wine 2 pints. Macerate for fourteen days, with occasional agitation; then express, and filter through paper.—*United States.*

VINUM ERGOTÆ—*Wine of Ergot, U.S.*—Take of ergot, bruised, 2 ounces; wine a pint. Macerate for fourteen days, with occasional agitation; then express, and filter through paper.—*United States.*

VINUM GENTIANÆ—*Wine of Gentian, E.*—Take of gentian, in coarse powder, half an ounce; yellow bark, in coarse powder, 1 ounce; bitter orange-peel, dried and sliced, 2 drachms; canella, in coarse powder, 1 drachm; proof spirit 4½ fluid ounces; sherry 1 pint and 16 fluid ounces. Digest the root and barks for twenty-four hours in the spirit; add the wine, and digest for seven days more; strain and express the residuum strongly, and filter the liquors.—*Edinburgh.*

VIN DE GENTIANE—*Wine of Gentian, P.*—Take of gentian-root 32 parts; proof spirit 64 parts; red wine 1,000 parts. Cut the gentian-root, put it with the spirit into a stopper bottle; after twenty-four hours add the wine, allow it to macerate for eight days; then filter.—*Paris Codex.*

VINUM IPECACUANHÆ—*Wine of Ipecacuanha, L.*—Take of ipeca-

cuanha, bruised, 2½ ounces; sherry wine 2 pints. Macerate for fourteen days, and strain.—*London.*

Vinum Ipecacuanhæ—*Wine of Ipecacuanha, E.*—Take of ipecacuanha, in moderately fine powder, 2½ ounces; sherry 2 pints. Digest for seven days, and then filter.—*Edinburgh.*

Vinum Ipecacuanhæ—*Wine of Ipecacuanha, D.*—Take of ipecacuanha root 1 part; Spanish white wine 15 parts. Macerate for seven days, and filter through paper.—*Dublin.*

Vinum Ipecacuanhæ—*Wine of Ipecacuanha, U.S.*—Take of ipecacuanha, bruised, 2 ounces; wine 2 pints. Macerate for fourteen days, with occasional agitation; then express, and filter through paper.—*United States.*

Vinum Opii—*Wine of Opium, L.*—Take of purified extract of opium 2½ ounces; cinnamon, bruised, cloves, bruised, each, 2½ drachms; sherry wine 2 pints. Macerate for fourteen days, and strain.—*London.*

Vinum Opii—*Wine of Opium, E.*—Take of opium 3 ounces; cinnamon, in moderately fine powder, and cloves, bruised, of each, 2½ drachms; sherry 2 pints. Digest for seven days, and then filter.—*Edinburgh.*

Vinum Opii—*Wine of Opium, D.*—Take of Turkish opium 1 ounce; bruised cinnamon bark, bruised cloves, each, 1 drachm; Spanish white wine a pint. Macerate for eight days, and then filter.—*Dublin.*

Vinum Opii—*Wine of Opium (Sydenham's Laudanum), U.S.*—Take of opium, in powder, 2 ounces; cinnamon, bruised, cloves, bruised, each, a drachm; wine a pint. Macerate for fourteen days, with occasional agitation; then express, and filter through paper.—*United States.*

Vin d'Opium Composé—*Compound Wine of Opium, P.*—Take of picked opium, sliced, 64 parts; saffron 32 parts; cinnamon, bruised, 4 parts; cloves, bruised, 4 parts; Malaga wine 500 parts. Macerate for fourteen days; strain, express the residuum strongly, and filter.—*Paris Codex.*

Vin d'Opium Obtenu par la Fermentation—*Wine of Opium Prepared by Fermentation, P.*—Take of picked opium 125 parts; honey 375 parts; warm water 1,875 parts; fresh yeast 8 parts. Dissolve separately the honey and opium in the water; add the yeast, and allow it to digest in a temperature about 86 degrees Fahrenheit for a month or less until the fermentation has ceased; strain and press; filter the liquor, and distil by the heat of a water-bath sixteen ounces of spirituous liquid; distil this a second time, and procure twelve ounces, and again a third time, and let the produce be four ounces and a half. Likewise evaporate the residue of the first distillation in a water-bath to 320 parts; add the opiated alcohol; mix thoroughly, and filter if necessary.—*Paris Codex.*

Vin de Quinquina—*Wine of Bark, P.*—Take of crown bark 64 parts; proof spirit 125 parts; red wine 1,000 parts. Bruise the bark; add the spirit, and macerate in a closed vessel for twenty-four hours; then add the wine, and macerate for eight days, agitating occasionally; strain, and filter.—*Paris Codex.*

Vinum Rhei—*Wine of Rhubarb, E.*—Take of rhubarb, in coarse powder, 5 ounces; canella, in coarse powder, 2 drachms; proof spirit 5 fluid ounces; sherry 1 pint and 15 fluid ounces. Digest for seven days; strain; express strongly the residuum, and filter the liquors.—*Edinburgh.*

Vin Scillitique—*Wine of Squill, P.*—Take of squill 32 parts; Malaga wine 500 parts. Bruise the squill; macerate in the wine for twelve days; strain, and filter.—*Paris Codex.*

In the same manner prepare

Vin de Bulbes de Colchique—*Wine of Colchicum-root, P.*
" Semences " " *seed, P.*

Vinum Tabaci—*Wine of Tobacco, E.*—Take of tobacco 3½ ounces; sherry 2 pints. Digest for seven days; strain; express strongly the residuum, and filter the liquors.—*Edinburgh.*

Vinum Tabaci—*Wine of Tobacco, U.S.*—Take of tobacco, cut in pieces, an ounce; wine a pint. Macerate for fourteen days, with occasional agitation; then express, and filter through paper.—*United States.*

Vinum Veratri—*Wine of White Hellebore, L.*—Take of white hellebore, sliced, 8 ounces; sherry wine 2 pints. Macerate for fourteen days, and strain.—*London.*

Vinum Veratri Albi—*Wine of White Hellebore, U.S.*—Take of white hellebore, bruised, 4 ounces; wine a pint. Macerate for fourteen days, with occasional agitation; then express, and filter through paper.—*United States.*

Tests.

Ammoniæ Oxalas—*Oxalate of Ammonia, E.*—Take of oxalic acid 4 ounces; carbonate of ammonia 8 ounces; distilled water 4 pints. Dissolve the carbonate in the water, add gradually the acid, boil, and concentrate sufficiently for crystals to form on cooling.—*Edinburgh.*

Barytes Nitras—*Nitrate of Barytes, E.*—This salt is to be prepared like the muriate of baryta, substituting pure nitric acid for the muriatic acid.—*Edinburgh.*

Solutio Argenti Nitratis—*Solution of Nitrate of Silver, E.*—Take of nitrate of silver 40 grains; distilled water 1,600 grains. Dissolve the salt in the water, and keep the solution in well-closed bottles.—*Edinburgh.*

Solutio Argenti Ammoniati—*Solution of Ammoniated Silver, E.*—Take of nitrate of silver 44 grains; distilled water 1 fluid ounce; aqua ammoniæ a sufficiency. Dissolve the salt in the water, and add the aqua ammoniæ gradually, and towards the end cautiously, till the precipitate at first thrown down is very nearly, but not entirely, redissolved.—*Edinburgh.*

Solutio Barytæ Nitratis—*Solution of Nitrate of Barytes, E.*—Take of nitrate of baryta 40 grains; distilled water 800 grains. Dissolve the salt in the water; and keep the solution in well-closed bottles.—*Edinburgh.*

Solutio Sodæ Phosphatis—*Solution of Phosphate of Soda, E.*—Take of phosphate of soda (free of efflorescence) 175 grains; distilled water 8 fluid ounces. Dissolve the salt in the water, and keep the solution in well-closed bottles.—*Edinburgh.*

A Table of Elements.

Aluminium.	Manganese.
Antimony.	Mercury.
Arsenic.	Molybdenum.
Azote.	Nickel.
Barium.	Osmium.
Bismuth.	Oxygen.
Boron.	Palladium.
Bromine.	Phosphorus.
Cadmium.	Platina.
Calcium.	Potassium.
Carbon.	Rhodium.
Cerium.	Selenium.
Chlorine.	Silicium, or
Chromium.	Silicon.
Cobalt.	Silver.
Columbium.	Sodium.
Copper.	Strontium.
Fluorine.	Sulphur.
Glucinium.	Tellurium.
Gold.	Thorium.
Hydrogen.	Tin.
Iodine.	Titanium.
Iridium.	Tungsten.
Iron.	Uranium.
Lantanium.	Vanadium
Lead.	Yttrium.
Lithium.	Zinc.
Magnesium.	Zirconium.

APPENDIX.

APOTHECARIES' WEIGHTS AND MEASURES.

The standard weight of the British Pharmacopœia is the "troy." The subdivisions of the pound troy are—

One pound has 12 ounces.
One ounce " 8 drachms or drams.
One drachm " 3 scruples.
One scruple " 20 grains.

The exact proportion which the British troy weight bears to the metrical weight of France is not as yet conclusively fixed. Francœur calculates the pound troy equal to 392.9986 grammes; Matthieu, Legendre, and Dulong calculate it equal to 373.0956 grammes; Chelius and Hauschild equal to 373.243 grammes. The most universally adopted evaluation, however, is that of Loehmann, who reckons 9216 grains of the former standard weight of France (*poids de marc*) equal to 7555 grains troy; the pound troy equal to 7026.320 grains marc; and the kilogramme equal to 15434 grains troy, which gives 373.202 grammes as the equivalent of one pound troy.

The subjoined tables are calculated upon Loehmann's valuation:—

I.—VALUE OF THE TROY WEIGHT IN FRENCH WEIGHTS.

1. *In Metrical Weight.*

One pound troy = 373.202 grammes.
One ounce " = 31.10017 "
One drachm " = 3.887521 "
One scruple " = 1.295840 "
One grain " = 0.06479201 "

2. *In Marc Weight.*

—	Ounces.	Drachms.	Grains.
One pound troy =	12	1	42.33
One ounce " =	1	..	9.53
One drachm " =	..	1	1.19
One scruple " =	..	..	24.40
One grain " =	..	..	1.2203389830

II.—VALUE OF THE FRENCH WEIGHTS IN TROY WEIGHT.

1. *Value of the Metrical Weight in Troy Weight.*

—	Ounces.	Drachms.	Scruples.	Grains.
One kilogramme =	32	1	..	14.00
One hectagramme =	3	1	2	3.4
One décagramme =	..	2	1	14.34
One gramme =	..	..	..	15.43 (15.434)
One décigrame =	..	..	..	1.54 (1.5434)
One centigramme =	..	..	..	0.15 (0.15434)
One milligramme =	..	..	..	0.02 (0.015434)

2. *Value of the Marc Weight in Troy Weight.*

—	Ounces.	Drachms.	Scruples.	Grains.
One pound marc =	15	5	2	15.03
One ounce " =	..	7	2	12.19
One drachm " =	..	..	2	19.02
One scruple " =	..	..	..	0.82

The subdivisions of the pound marc are—

One pound marc has 16 ounces.
One ounce " " 8 drachms.
One drachm " " 3 scruples.
One scruple " " 24 grains.

The United States of America use the same medicinal weight as England.

Another weight besides the troy is used both in England and America, viz., the *avoir-du-poids*. One pound of this is equivalent to 7000 grains troy, or 453.544 grammes. The subdivisions are—

One pound has 16 ounces.
One ounce " 16 drachms.
One drachm " 3 scruples.
One scruple " 10 grains.

This weight is sometimes used by wholesale druggists.

The following are the relative proportions between the troy and the avoir-du-poids:—

One pound troy is equivalent to 0.822857 pound avoir-du-poids, or 13 ounces, 2 drachms, 1 scruple, 9.5 grains.

One ounce troy is equivalent to 1 ounce, 1 drachm, 1 scruple, 6.625 grains avoir-du-poids.

One pound avoir-du-poids is equivalent to 1.215277 pound troy, or 1 pound, 2 ounces, 4 drachms, and 2 scruples.

One ounce avoir-du-poids is equivalent to 7 drachms 17.5 grains troy.
144 pounds avoir-du-poids are equivalent to 175 pounds troy.
175 ounces troy are equivalent to 192 ounces avoir-du-poids.

The subjoined table shows the differential values between the British troy weight and the medicinal weights of the other countries of Europe calculated in grains:—

COUNTRIES, &c.	Value of the Pound, 5760 Grains.	Value of the Ounce, 480 Grains.	Value of the Drachm, 60 Grains.	Value of the Scruple, 20 Grains.	Value of the Grain.
Austria (1)	5118.09	426.51	53.31	17.77	0.89
Bavaria (2)	5971.23	497.60	62.20	20.73	1.04
Bologna	7920.93	660.08	82.51	27.50	1.38
Coni	8392.40	699.37	87.42	29.14	1.46
Corte	7807.42	650.62	81.33	27.11	1.36
Holland (3)	5732.38	477.70	59.71	19.90	1.00
Lubeck	5823.60	485.30	60.66	20.22	1.01
Lucca	7711.73	642.64	80.33	26.78	1.34
Modena	7576.80	631.40	78.92	26.31	1.32
Monticelli (4)	8334.64	694.55	86.82	28.94	1.45
Naples (5)	8377.11	698.09	87.26	29.09	1.46
Nuremberg (6)	6007.22	500.60	62.58	20.86	1.04
Parma (7)	7864.55	655.38	81.92	27.31	1.37
Piacenza (8)	8124.20	677.02	84.63	28.21	1.41
Poland	5996.04	499.67	62.46	20.82	1.04
Portugal	7494.62	624.55	78.07	26.02	1.30
Prussia (9)	6128.12	510.68	63.83	21.28	1.06
Rome	7607.72	633.98	79.25	26.42	1.32
Spain	7475.46	622.96	77.87	25.96	1.30
Sweden	6034.48	502.87	62.86	20.95	1.05
Turin	7770.71	647.56	80.94	26.98	1.35
Turkey	7436.78	619.73	77.47	25.82	1.29
Tuscany	7597.21	633.10	79.14	26.38	1.32
Venice	7136.23	594.69	74.34	24.78	1.24

(1) This weight is used in Austria Proper, Bohemia, Moravia, Hungary, Transylvania, Tyrol, and the Lombardo-Venetian kingdom, with the exception of the city of Venice.

(2) This weight has been adopted in Greece.

(3) This weight is also used in Belgium.

(4) Monticelli, Castelvetro, and Polesine.

(5) Kingdom of the Two Sicilies.

(6) This weight is no longer used in Nuremberg; this city, being now incorporated in the kingdom of Bavaria, has adopted the Bavarian standard. But the Nuremberg weight is still extensively used in Germany and other countries. In Germany we find it in the duchies of Saxe-Altenburg and of Anhalt Bernburg, grand duchy of Baden, city of Bremen, duchies of Brunswick, Saxe Meiningen, and Saxe Coburg-Gotha, cities of Frankfort-on-the-Maine and Hamburg, kingdom of Hanover, electorate of Hesse, grand duchy of Hesse, landgraviate of Hesse Homburg, principality of Hohenzollern Sigmaringen, duchy of Nassau, grand duchy of Oldenburg, principalities of Reuss-Plauen and Reuss-Schleitz, of Schwarzburg-Rudolstadt, and Schwarzburg-Sonderhausen, duchy of Sleswick-Holstein, principality of Waldeck, grand duchy of Saxe-Weimar, and kingdom of Wurtemberg.

The Nuremberg standard is also adopted in Denmark, Norway, Finland, Russia, and Switzerland.

(7) Parma, Borgo San-Donnino, Pellegrino, San-Secondo, Fontanellato, and Bussetto.

(8) Piacenza, Fiorenzola, and Carpaneta.

(9) This standard has been adopted in the kingdom of Saxony, the principalities of Lippe-Detmold and Lippe-Schaumburg, and the duchy of Anhalt-Dessau. It differs so little from those of Anhalt-Coethen and the grand duchies of Mecklenburg-Schwerin and Mecklenburg-Strelitz, that the standard of these three territories may be considered identical with that of Prussia.

This table needs hardly any explanation: it will enable the pharmacien—in all cases of foreign formulæ—to calculate the foreign weight in troy weight; thus, *e. g.*,—one grain troy being equal to 0.89 grain of

Austria—the value of one grain Austrian weight in English troy weight may be readily ascertained by a simple rule-of-three example :—

0.89 : 1 : : 1
1 × 1 = × 1 = 0.100

0.89)0.100(1.1236
89

110
89

210
178

320
267

530
534—4

The Austrian grain is, accordingly, within a very trifling fraction equal 1.1236 grain troy. It must be borne in mind, however, that several of the countries and towns enumerated in this table do not subdivide the medicinal pound in the same way as it is done in England; but make the scruple 24 grains instead of 20; and, accordingly, make the medicinal pound 6912 grains instead of 5760.

Here subjoined are the names of the countries and cities in which the division into 5760 grains is adopted, and the names of those which follow the division into 6912 grains :—

5760 Grains.	6912 Grains.
Austria.	Bologna.
Bavaria.	Conl.
Holland.	Corte.
Lubeck.	Lucca.*
Nuremberg.	Modena.
Poland.	Monticelli.*
Prussia.	Parma.*
Sweden.	Piacenza.*
Venice.	Portugal.
	Rome.
	Spain.†
	Turin.
	Tuscany.

In Naples the medicinal pound is divided into 7200 grains, viz., into 12 ounces, the ounce into 10 drachms, the drachm into 3 scruples, and the scruple into 20 grains.

In Turkey the medicinal pound (*tcheqy*) is divided into 100 drachms, the drachm into 16 killos, the killo into 4 grains. The tcheqy has, accordingly, 6400 grains.

LIQUID MEASURE.

The *gallon* is the fundamental unity of the British measure for fluids. Formerly three distinct gallons of different capacity were used in England, viz., 1, the dry-measure gallon, of a capacity of 268.8 English cubic inches; 2, the Winchester or beer gallon, of a capacity of 282 English cubic inches; and 3, the wine gallon, of a capacity of 231 English inches. Since 1825, however, we have only one legally recognised gallon measure for dry goods and liquids. This is of a capacity of 277.274 English cubic inches (equal to 229.0468 Par. cubic inches), and contains exactly 10 pounds of distilled water (avoir-du-poids) at 62 deg. Fahr. and 30 barom. This gallon corresponds to 4.54346 litres metrical measure of France; its subdivisions are :—

One gallon has 4 quarts.
One quart " 2 pints.
One pint " 2 gills.

But, for pharmaceutical purposes, the old wine gallon, of 231 English cubic inches capacity, is still universally used. This corresponds to 3.785 litres metrical measure of France = 3785 grammes. The subdivisions of this measure are :—

One gallon (*congius*)	= 3785	grammes, has	8 pints.
One pint (*octarius*)	= 473.144	"	20 fluidounces.
One fluidounce (*fluidoncia*)	= 23.6572	"	8 fluidrachms.
One fluidrachm (*fluidracma*)	= 2.95715	"	60 minims.
One minim (*minimus*)	= 0.49285833		

The fundamental unity of the metrical measure of France is the *litre*, which contains one thousand times the weight of a cubic inch (= one cubic decimeter) of distilled water taken at its maximum density; the weight of one cubic centimeter of distilled water at its maximum of density being one gramme, it follows that the litre weighs 1000 grammes, or one kilogramme. The unity of the liquid measure of France, previously to the introduction of the metrical system, was the *pint* of Paris, which is equivalent to 0.9313165. The litre is accordingly equivalent to 1.0737488276 pint of Paris.

The subjoined is a list of the principal liquid measures of Europe, with their corresponding value in the metrical measure of France :—

Austria.—The fundamental unity is the *mass* or *kanne* = 71.3343 Par. cubic inches, or 1.415015 litre. The mass is divided into 3 seidel, and 40 mass make one eimer.

Baden.—The fundamental unity is the *mass* = 1.5 decimeter cubic, and accordingly equivalent to 1.5 litre.

Bavaria.—The fundamental unity is the mass = 43 decimal cubic inches of Bavaria, or 1.06921728 litre. The mass is divided into 4 *schoppen*.

Denmark.—The fundamental unity is the *pott* ($\frac{1}{32}$d part of a cubic foot Danish), equivalent to 0.96529 litre. The pott is divided into four *pegel*, and 2 potts make a kanne.

Grand Duchy of Hesse.—The fundamental unity is the *mass*, which corresponds exactly to 2 litres. The mass is divided into 4 *schoppen*.

Naples.—The unity is the *barile*, equivalent to 43.6216 litres.

Portugal.—The unity is the *almude*, equivalent to 16.451 litres.

Prussia.—The unity is the *quart*. This measure has a capacity of 64 cubic inches of distilled water at 61.25 Fahr. and 27° 10′ barom., = 57.724 cubic inches of Paris, or 1.145 litre.

Rome.—The unity is the *barile*, equivalent to 58.3416 litres.

Russia.—The unity is the *wedro*, which contains 750 cubic inches of distilled water at 50 Fahr. and 30 barom., = 30 pounds Russian. The wedro is equivalent to 12.28963047 litres, and one litre is accordingly equivalent to 0.081369410776019 wedro. The wedro is divided into 10 *stof*, and the stof into 10 *tschark*.

Spain.—The unity is the *arroba*, equivalent to 16.073 litres.

Sweden.—The fundamental unity is the *kanna*, which contains 100 cubic decimal inches of pure water at 62 Fahr. *in vacuo*, equivalent to 6.151951 pounds Swedish. One pound Swedish of pure water at 62 Fahr. *in vacuo* is equal to 0.4250104 litre; the *kanna* is consequently equivalent to 2.6146431552904 litres, or, calculated upon the maximum density of water, 2.617341607126 litres, or, in shorter terms, 2.62 litres. The kanna is divided into 2 *stop*, the stop into 4 *quarter*, and the quarter into 4 *jungfrus*.

Turin.—The unity is the *brenta*, divided into 36 pints, and equivalent to 49.28468 litres.

Tuscany.—The unity is the *barile*, equivalent to 45.584 litres.

Wurtemberg.—The unity is the *mass*, which contains 78.125 cubic inches (Wurtemberg measure), and is equivalent to 1.83705 litre. The mass is divided into four *schoppen*.

EXPLANATION OF THE PRINCIPAL ABBREVIATIONS OCCURRING IN PHARMACEUTICAL FORMULÆ.

℞. Recipe—Take.
F.S.A. Fiat secundum artem—Let it be made or prepared according to the rules of the art.
M. Misce—Mix.
M.S.D. Misce, signa, da—Mix the medicine and deliver it afterwards with the requisite instruction to the patient (or nurse) in writing.
M.F.P. Misce fiat pulvis—Mix to form a powder.
M.F Mixt. Misce fiat mixtura—Mix to form a liquid mixture.
M.F.Pil. Misce fiant pilulæ—Mix to form pills.
Div. Divide—Divide.
Sol. Solve—Dissolve.
Fasc. j. Fasciculus—An armful.
Man. j. Manipulus—A handful, a gripe.
Pugil. j. Pugillus or Pugillum—A pinch.
Cyat. j. Cyathus—A glassful.
Cochl. j. Cochlear or cochleare—A spoonful.
Gutt. Gutta—Drop.
No. 1, 2, 3, &c. The number of pieces or parts.
Ana, or aa. Of each.
P. Æ. Partes æquales—Equal parts.
Q.S. Quantum sufficit—As much as will suffice.
Q.L. Quantum libet—As much as you like.
Q.V. Quantum volueris—As much as you like.
lb. Libra—A pound.
℥. Uncia—An ounce.
℥. Drachma—A drachm or dram.
℈. Scrupulus—A scruple.
Gr. Granum—A grain.
Pil. Pilula—A pill.
Pot. Potio—A potion.
Pulvo. Pulvis—A powder.
Tinc. Tinctura—A tincture.
Ext. Extractum—An extract.

* In Lucca, Monticelli, Parma, and Piacenza, the medicinal pound is divided into 12 ounces, the ounce into 24 *denaria*, and the denarium (or pennyweight) into 24 grains. In Parma, Piacenza, and Monticelli, however, the division into drachms and scruples is frequently met with.

† The medicinal weight used in Spain is the *Castilian marc*, which is divided into 8 ounces, the ounce (*onza*) into 8 drachms, the drachm (*dracma*) into 3 scruples, the scruple (*escrupulo*) into 2 oboli, the obolus (*obolo*) into 3 siliquæ, the siliqua (*silicua*) into 4 grains. But we have here calculated the medicinal pound of Spain at 1½ marc = 12 ounces, and, accordingly, 6912 grains.

A VOCABULARY

Of the Words most frequently occurring in the Prescriptions of Physicians.

A.

A, aa, or ana, of each ingredient; more properly expressed in the New Pharmacopœia of the College, edit. 1809, by the genitive case plural (singulorum) of each; for instance:—
℞. Aquæ cinnamon, tinct. rhei aa ʒ ij., means,
Take of cinnamon-water and tincture of rhubarb, of each two drachms.
Abdomen, the belly. Gen.—inis, of the belly. Dat.—ini, to the belly.
Absente febre, while the fever is off.
Accuratè (adverb), accurately. Accuratè pensi, weighed with the utmost exactness. Accuratè misceantur, mix very completely.
Aciditas, sharpness. Ad gratam aciditatem, make it just acid enough to be palatable, and not to sour.
Acmè, the height of a fever or any other disease.
Ad, to. Ad duas vices, at twice taking. Ad libitum, as you like.
Adde, add. Addantur, let there be added. Addendus, to be added. Addendo, adding.
Admoveatur, let there be applied—antur, plural, when more than one is to be applied.
Adstante febre, while the fever is on.
Æger, a sick person, a patient. Ægra, a female patient.
Aggrediente febre, when the fever is coming on.
Aggressus, an attack. Aggressus febris, the attack of a fever.
Agitato vase, shaking the phial.
Albus, white.
Aliquot, some. Aliquoties, sometimes.
Alter, altera, alterum, the other.
Alternus, alternate. Alternis horis, every second hour. Alternis diebus, every alternate day.
Aluta, leather. Extende super alutam mollem, spread on soft leather.
Alvus, the belly, the bowels. Adstrictâ alvo, when costive.
Amplus, large. Cochleare amplum, a tablespoonful.
Ante, before. Ut ante, as before.
Antemeridianus, in the forenoon; any time before twelve o'clock at noon.
Apparatus, any sort of preparation, instruments, or, in short, everything that is requisite to be had in readiness for performing any sort of operation. Also, the more delicate term for a bladder and pipe for glysters.
Aperiens, opening, gently purging.
Applicetur, let there be applied.
Aqua, water. Aquæ, of water. Aqua bulliens, Aqua fervens, boiling water.
Armatus, armed. Fistula armata, an apparatus for glysters; a pipe and bladder.
Auris, the ear. Auri, to the ear. Aures, ears. Auribus, to the ears.
Aut, or.

B.

Bene, well.
Bibat, let him drink.
Biduum, two days. Omni biduò vel triduò, every two or three days.
Bihorium, the space of two hours. Omni bihorio, every two hours.
Bis, twice; bis, terve, twice or thrice.
Bullio, to boil; bulliens, boiling. Aquæ bullientis, of boiling water.
Bulliant, let them boil.

C.

Calefactus, made warm.
Capiat, let (the patient) take. Capt. Cochl. iij larg., three tablespoonfuls to be taken.
Catharticus, purging.
Cautè, cautiously.
Cerevisia, beer. Cerevisia Londinensis, porter.
Charta, paper. Charta cærulea, blue paper. Chartula, a little piece of paper. Cola trans chartam, filter through paper.
Cibus, food.
Circa, about. Circiter, about.
Citò, soon, quickly. Citissimè (the superlative degree), as quick as possible.
Clausus, clausa, clausum, covered. Vase clauso, in a covered vessel.
Cochleare, a spoonful. Cochlearia, spoonfuls. Coch. magnum, amplum, a tablespoonful. Co. infantulorum, coch. modicum, child's spoonful, a dessert spoonful. Co. parvum, a teaspoonful.
Coctio, a boiling. Sub finem coctionis, towards the end of the boiling, when almost boiled.
Cæruleus, blue. Charta cærul., blue paper. Unguentum cæruleum, mercurial ointment.
Cola (imperat of Colo), strain, to filter.
Colatus, strained, filtered. Colato liquori, to the strained liquor.
Colatura, a straining. Colaturæ, to the strained liquor.
Colatus, let be strained. Colentur, let them be strained.
Collum, a neck.
Comp., Compositus, compound.
Continuo, to continue. Continuantur remedia, go on with the same medicines as last prescribed.
Contundo, to bruise. Contusus, bruised.
Contusio, a bruise, a contusion.
Coquo, to boil. Coque, boil. Coque parùm, boil a little while.
Coquantur, let them be boiled.
Cor, the heart. Scrobiculus cordis, the pit of the stomach.
Coxa, coxendix, the hip.
Cras, to-morrow; c. m. cras mane, early to-morrow morning; c. m. s. cras mane sumendus, to be taken early to-morrow morning.
Crastinus (adj.), of to-morrow. In usum crastinum, for to-morrow's use.
Cribrum, a sieve. Trans cribum, through a sieve.
Cujus, of which. Cujus capiat, or sumat, of which (the patient is to) take.
Cum, with.
Cyathus, a cup. Cyathus vinarius, a wine-glass. Cyath. theat, a tea-cup full.

D.

Da, give. Detur, dentur (plural), let be given.
De, of. De quo, or quâ, of which. De die, in a day.
Deauratus, gilt. Deaurentur pilulæ, let the pills be gilt.
Debilitas, weakness.
Decem, ten. Decimus, the tenth.
Debitus, due. Ad debitam spissitudinem, to a proper degree of thickness, as to consistence.
Decubitus, lying down. Horâ decubitûs, at bedtime.
Deglutio, to swallow. Deglutiatur, is swallowed—etur, let be swallowed.
Dein, deinde, then; afterwards.
Dejéctio, a depositing, or putting down, also a going to stool; as post duas dejectiones alvi, after two motions.
Dejitio, to deposit. Donec alvus bis dejiciat, until the patient shall have had two stools.
Dexter, the right. Manus dextra, the right hand. Auri dextro, to the right ear.
Dictus, spoken of, said.
Dies, a day. Die, in a day; as bis die, twice a day. Diebus, in days; as tertiis diebus, every third day. Alternis diebus, every alternate day.
Dilutum, diluted.
Dimidium, the half. Dimidius a. um. (adjective), half.
D.P., Directione propria, with its proper direction.
Diu, a long time. Tere diu, rub for a long time.
Diuturnus, long continued. Diuturnâ triturationе, by long-continued rubbing, or grinding in the mortar. Diuturna coctione, by long boiling.
Dolor, pain. Dolores, pains. Doloris, of the pain.
Dolens, pained. Parti dolenti, to the pained part.
Donec, until. Dum, whilst.
Durante dolore, while the pain continues.

E.

Eadem, eandem, the same. Eodem, in the same.
Effunde, pour out.
Effervescentia, the effervescence.
Effervescet, effervesces.
Ejusdem, of the same, the genitive case of idem.
Enema, a glyster. Enemata, glysters.
Erit, shall be.
Evanesco, evanui, to disappear. Evanuerit, shall have disappeared.
Exhibe, exhibeatur, give. Exhibendus, to be given.
Extendo, to extend, also to spread. Extende super alutam, spread it on leather.
Extensus, a, un, spread.

F.

Fac, make. Fac in pilulas xij., makes into twelve pills.
Farina, flour. Farina seminis lini, linseed meal.
Febris, a fever. Febre durante, while the fever is on.
Femur, a thigh.
Femoribus, to the thighs. Femoribus internis, to the inner sides thighs.
Fervens, boiling. Fervidus fervida, hot.
Ferventis, of boiling. ℞ aq. ferventis, take of boiling water.
Finis, the conclusion. Sub finem coctionis, when almost boiled enough.
Fiat, make (the singular number). Fiant, make (plural).
Fontana, fountain. Aqua fontana, spring water.
Formula, prescription.
Fotus, a fomentation.
Fuerit, shall have been; as donec alvs soluta fuerit, until a motion is (or shall have been) procured.

G.

Gargarisma, a gargle.
Gelatina, jelly. Gelatina ribesiorum, currant jelly. Gelatina quovis, any sort of jelly.
Globulus, a little ball. Globuli Gascoigni, Gascoign's ball. Donec globuli evanuerint, until the globules (of quicksilver) totally disappear (so that they cannot be seen even with a microscope).
Gradatim, by slow degrees.
Gratus, grata, gratum, agreeable, pleasant. Ad gratam aciditatem, so as to make it pleasantly acid without being too sour. In quovis grato vehiculo, in any agreeable vehicle.
Gutta, a drop. Guttæ, drops. Guttas, drops.
Guttatin, drop by drop.

H.

Hac, this. Hac nocte, this night. Hanc, this. Sumat hanc, let him take this.
Hactenus, hitherto, heretofore, up to the present day.
Harum, of these. Harum pilularum sumat tres, of these pills let him or her take three.
Haustus, a draught.
Hebdomada, a week.
Heri, yesterday. Ut heri, as yesterday.
Hesternus, of yesterday. Hesterna nocte, last night.
Hirudo, a leech. Hirudines, leeches.
His, in these, to these. His adde, add to these.
Hora, an hour. Horæ, of an hour. Horæ (plural), hours.
H.S. (horâ somni), at the hour of rest.
H.S.S (horâ somni sumendus), to be taken at bedtime. Hora decubitus, at the hour of going to rest, bedtime.
Horâ vespertinâ, in the evening, or at ten o'clock in the forenoon, and six in the evening.
Horæ unius spatio, in the space of one hour.
Horæ ¼, horæ quadrante, quarter of an hour.
Horis intermediis, at intermediate hours, when two medicines are to be taken. Horis intermediis, it means that one is to be given exactly at midtime from the other; suppose a draught is ordered (to be taken every six hours), and a powder horis intermediis, that is every six hours intermediately, then a draught will be taken at six o'clock and at twelve, and a powder at three and at nine.
Hujusmodi, of this sort, like these.
H. p. n., Haustus purgans noster, a formula of purging draught made according to a practitioner's own private Pharmacopœia, and is prepared so as to keep a long time without spoiling, that we may not have the trouble of preparing it every time a draught is wanted,—Mitt. H. p. n. ℥ij ad ij Vices c. m. s. Mitte Haustus purgantis nostri uncias duas, ad duas Vices cras mane sumendus, send two ounces of our purging draught, to be taken to-morrow morning at twice, that is half at first, and the remaining half in an hour if the first do not operate.

I.

Idoneus, proper, appropriate.
Idem, eadem, the same. Ejusdem, of the same, the genitive case of Idem.
Imponatur (sing.), let there be put on—nantur (plural).
Imprimis, first.
In, in. In die, in a day.
Indies (an adverb), every day, daily.
Indicaverit, shows, indicates.
Infusio infusum, an infusion.
Infunde, infundatur, infuse.
Inter, between.
Injectio, injection.
Inquietudo, restlessness. Ungente inquietudine, if restless.
Injiciatur, throw in, throw up. Injiciatur enema, let a glyster be administered.
Injiciendus, Injiciendum, to be administered.
Instar (an adverb), as big as. Sumat molem instar mucis moschatæ, the bigness of a nutmeg to be taken.
Intermedius, intermediate.
Internus, the inner side.

J.

Jam, already. Jampridem, jamdudum, some time ago, heretofore.
Jugulum, the throat.
Jusculum, broth. Jusculum ovillum, mutton broth. Jus bovinum, beef tea.
Juxta, near to.

L.

Lac, milk. Lactis, of milk. Lacte, in milk.
Lævigatus, levigated.
Lana, flannel. Lana nova, new flannel.
Languor, faintness, lowness. In languoribus, in the fainting fits, when low and faint.
Latus, the side. Lateris, of the side. Lateri, to the side. Latus dolens, the pained side. Lateri dolenti, to the pained side.
Latus, lata, latum (adjective), broad.
Lectus, a bed. In lecto, in bed.
Li er, a book.
Libra, a pound. Libris, libras, pounds.
Linteum, lint; also linen.
Liquesco, to liquefy, to melt. Donec liquescat, till it melts.
Liquidus, liquid. Sedes liquidæ, loose stools. In quovis liquido, in any liquid.
Londinensis, of London. Pharmacopœia Londinensis, the London Dispensatory.
Lumborum, of the loins.
Libet (a verb impersonal), it pleases. Ad libitum, just as you please.

M.

Magnus, magna, magnum, large. Magnum cochleare, a table-spoonful.
Major, greater, larger. Cochlearia duo majora, two table-spoonfuls.
Maximus, the greatest, Maximâ curâ, with the greatest care.
Maximè, chiefly.
Malleolus, the ankle. Malleolus internus, the inner ankle.
Manè, in the morning. Manè primo; valde mane, very early in the morning.
Manus, a hand. Manu calefacta, with a warm hand.
Massa, a mass. Massa pilularis, a mass fit for forming into pills.
Matutinus, in the morning or forenoon.
Mediocris, middle-sized. Pilulæ mediocres, middle-sized pills. Cochleare mediocre, a dessert-spoonful, a pap-spoonful, or a child's spoonful. Mediocris, also means indifferent, as to quality.
Medius, middle. Media nocte, in the middle of the night.
Melior, melius, better.
Minatur, minaretur, threatens. Minante, threatening.
Minimus, very small. Cochleare minimum, a teaspoonful.
Minutum,* a minute.
Misce, mix. Bene misceatur, let it be well mixed.
Mite, send.
Mittatur (singular), let it be sent. Mittantur (plural), let them be sent.
Mittatur sanguis, take blood away; *i. e.*, bleed the patient.
Mistura, mixtura, a mixture.
Mitigatio, mitigation, alleviation. Donec doloris mitigatio sit, until the pain is easier.
Mitigatus, a, um, mitigated, lessened.
Modicus, middle-sized.
Modus, a manner. Modo præscripto, in the manner directed.
Moles, a mass, a lump, a piece. Sumat molem instar nucis moschatæ, let him (or her) take the bigness or size of a nutmeg.
Mollis, molle, soft.
Molestus, troublesome. Molestor, to trouble, to be troublesome. Molestante dolore, when the pain is troublesome. Molestante tussi, when the cough is troublesome.
Mora, delay. Sine morâ, without delay.
Mos, moris, manner. More solito, in the usual manner; also, in the same manner as I am in the habit of prescribing it to other people.
Mortarium, a mortar. Mortario aheneo, in the brass mortar. Mortario marmoreo, in the marble mortar. Mort. vitreo, in the glass mortar.

N.

Narthecium, a gallipot.
Nates, the buttocks.
Ne, lest, also, do not; as ne tradas sine nummo, do not deliver the medicine without the money.
Necnon, also.
Niger, nigra, nigrum, black.
Ni, nisi, unless.
Nihil, nothing.
Nisus, an endeavour, an attempt, a straining, a motion, a straining to vomit, or go to stool.
Nimis, nimium, too much.
Nodulus, a little knot. Nodulo ligati, tied up in a piece of clean rag.
Nomen, nominis, a name. Signetur nomine proprio, write its common name upon the label.
Novem, nine.
Nonus, the ninth.
Novus, nova, novum, new.
Novissime, very lately, the last of all.
Nocte, at night. Noctes, nights. Nocte maneque, night and morning. Alternis noctubus, every second night.
Nuper, lately. Nuperrime, very lately.
Nucha, the nape of the neck. Nuchæ, to the nape.
N.M., Nux moschata, a nutmeg. Sumat magnitudinem nucis moschatæ, take the bigness of a nutmeg.

Numeri.		Numbers.	
1. or j.	unus, una, unum, one. unius, of one.	7 or vij	septem, seven. septimus, seventh. septimana, or, 7 mana, a week.
2.	ij. duo duæ, two. duorum, of two. duobus, in two, to two.	8.	viij. octo, eight. octavus, eighth.
3.	iij. tres, tria, three. tribus, in three, to three. trium, of three. ter, three times.	9.	ix. novem, nine. nonus, ninth.
4.	iv. quatuor, four. quartus, a—um, fourth. quater, four times.	10.	x. decem, ten. decimus, tenth.
5.	v. quinque, five. quintus, fifth.	11.	xj. undecim, eleven.
6.	vj. sex, six. sextus, sixth.	12.	xij. duodecim, twelve.
		20.	xx. viginti, twenty.
		24.	xxiv. viginti quatuor, twenty-four.

O.

Obstante, hindering, preventing.
Occasio, occasion, opportunity.
Octo, eight.

* The word minutum, for a minute, is very barbarous Latin; we believe there is no such word; but the right Latin for a minute, Sexagesima pars horæ, is as long and as tiresome to write as "Semivitreous Oxyd. of lead" for the simple word "Litharge."

Octavus, eighth. Octava quaque horâ, every eighth hour.
Olim, some time ago.
Olla, a pot, a gallipot.
Omnis, all. Omni mane, every morning. Omni horâ, every hour. Omni bihorio, every two hours. Omni nocte, every night. Omni ¼ horâ, Omni quadrante horæ, every quarter of an hour. Tere omnia, rub all together.
Omninò, quite, wholly, entirely.
Optimè, very well, as well as possible.
Optimus, ma, mum, best.
Opus, need, occasion. Si opus sit, or fuerit, if it be necessary.
Ovillum jusculum, mutton broth.
Ovum, an egg. Vitell. ovi, the yolk of an egg. Ovorum, of eggs.

P.

Pannus, a rag. Pannus linteus, a linen rag. Pannus laneus, Pannus è lanâ, a piece of flannel.
Paroxysmus, a paroxysm, a fit, a convulsion fit.
Pars, a part. Partes, parts. Parti dolenti, to the pained part.
Partitus, parted. Partitus vicibus, means, that you are not to give a medicine all at once, but divide the dose according to the directions most commonly previously given; for example, if a purging or emetic draught, half or a third (as the case may be) to be taken at first, and the other half or third at a certain distance of time, if the former quantity be not found sufficient to take the desired effect.
Parvus, little. Cochleare parvum, a teaspoonful.
Parum, a little. Parumper, a little.
Pauculum, pauxillum, paululum, a little.
Pectus, the breast. Pectoris, of the breast.
Pediluvium, a bath for the feet.
Per, by, or through.
Pergo, to go on with. Pergat in usu medicinarum, continue the medicines as before.
Peractus, } completed, perfected, quite done, gone through with; as,
Perfectus, } Peractâ operatione emetici, after the emetic has quite done operating.
Perfricetur, let it be rubbed. Perfricandus, to be rubbed.
Pensus, weighed. Accuratè pensi, exactly weighed.
Perpetuus, perpetual. Fiat perpetuum, keep it open (when it refers to a blister).
Pluvialis, also pluviatilis aqua, rain-water.
Pharmacopœia, the dispensatory.
Pollex, the thumb. Pollex pedis, the great toe.
Pomeridianus, postmeridianus, in the evening or afternoon, time of the day.
P.R.N., Pro re natâ, occasionally, according as circumstances may occur, according as the symptoms may require.
Poculum, a cup.
Pomum, an apple. Pomi, of an apple.
Pone, behind. Pondere, by weight.
Porro, moreover. Post, after. Postea, then, afterwards.
P.M., Post meridiem, afternoon, in the afternoon, after twelve o'clock at noon.
Potus, drink, any kind of beverage.
Postulet, postulent, may require, demand.
Præcipue, especially.
Præparatus, prepared.
Præparo, to prepare. Præparentur, let them be prepared.
Primus, ma, mum, the first. Primò, first of all. Primo mane, very early in the morning.
Prior, prius, the former, the first.
Priusquam, before that.
Pro, for. Pro re natâ, p. r. n., occasionally, &c. Pro ratione, according to, or, in proportion to; as, pro ratione ætatis, according to the age of the patient.
Proprius, a, um, proper. S.N.P., Signetur nomine proprio, mark it with its proper direction.
Pruritus, an itching. Pruriens, itching. Dolichos pruriens, cowhage.
Psora, the itch.
Pulvis, a powder. Pulveres, powders. Pulveribus, in powders.
Purificatus, a, um, purified.
Pyxis, pyxidis, a pill-box, or lozenge-box.

Q.

Quadrans, quadrantis, quadrante, quarter. Omni quadrante horæ, every quarter of an hour.
Quacum, with which.
Quamprimum, as soon as possible, without the least delay.
Quartus, a, um, the fourth.
Quâqua, every. Quâvis (fœm), with any.
Quater, four times. Quatuor, four. Quarta pars, a fourth part.
——que (at the end of any Latin word), and.
Quem, quam, quod, which (the accusative case).
Qui quæ, quod, which (the nominative case).
Quibus, to which, with which.
Quibusdam, to or with some. Cum guttis quibusdam, with a few drops.
Quilibet, quælibet quodlibet, gen. Cujuslibet, abl. Quolibet, any.
Quiescat, goes to rest, is easier.
Quinque, five. Quintus, a, um, the fifth. Quinquies, five times.
Quinquina (cinchona), Peruvian bark.
Q.S.—q. s., Quantum sufficiat, as much as may be sufficient.
Quorum, quarum, of which. Quos, quas, which. Quocum, quacum, with which. Quovis, with any.

R.

Ratio, a reason, also a proportion. Pro ratione ætatis, according to the age of the patient. Pro ratione doloris, according to the urgency of the pain.
Raucedo, hoarseness.
Recipe, take. Recipe (taken substantively), a prescription.
Regio, a region (an anatomical term for certain parts of the body); as regio epigastrica, the epigastric region; regio lumborum, the region of the loins; appl. emplastr regioni umbilicali, to the umbilical region, or parts in the neighbourhood of the navel.
Redigo, to reduce. Redige, reduce. Redigetur, may be reduced. Redigatur, let it be reduced.
Redactus, a, um, reduced. In pulv. redact, reduced to powder.
Refrixerit, pl.,—int, the subjunctive future of refrigesco, to cool.
Reliquus, a, um, the rest, the remaining part.
Remedium, a remedy. Continuandur remedia, go on with the same medicines as before.
Repetatur, let be repeated, repeat.
Repetendus, to be repeated.
Respondeo, responderit, shall have answered. Donec alvus ad sedes ij vol. iij responderit, until two or three stools shall have been procured.
Ribes, currants. Gelatina ribesiorum, currant jelly.
Ruber, rubra, rubrum, red.
Rubus, idæus, raspberry.
Retinendus, to be retained, or kept.

S.

S.V.R., Spiritus vinosus rectificatus, rectified spirit of wine.
S.V., Ten, or tenuis, proof spirit.
Sæpe, often; sæpius, oftener; sæpissime, very often.
Saltem, at least.
Sanguis, blood,—inis, of blood. Sanguinis missura, blood-letting.
Saphena vena, the ankle vein.
Scapula, the shoulder blade. Inter scapulas, between the shoulders.
Scilicet, to wit, namely.
Scrobiculus cordis, the pit of the stomach.
Secundus, a, um (adjective), second.
Secundum (preposition), according to.
S.A., Secundum artem, according to art; that is, you are to use your own ingenuity to do it in the most proper and scientific way.
Sed, but.
Sedes, a stool (plural), stools.
Semi, or semis, half. Semihora, half an hour. Semi drachma, half a drachm.
Sesqui, one and a half, as, sesquihora, an hour and a half. Sesquiuncia, or, sescuncia, an ounce and a half. Sesquidrachma, a drachm and a half. Remember well to attend to the difference of these two words, for many young men, by not knowing that sesqui means one and a half, but confounding it with semi, have made bad mistakes.
Semper, always.
Semel, once.
Septem, seven.
Septimana, a week, seven days. Septimus, seventh.
Sequens, following.
Serum lactis, whey. In sero lactis vinoso, in wine whey.
Serum, is also the watery part of the blood which separates from the red part, or crassamentum, on standing until cold.
Sex, six; sextus, sixth.
Si, if. Sive, or; whether.
Signatura, a label or direction.
Signetur, let it be marked, directed, written upon.
S.N.P., Signetur nomine proprio, mark it with the name it is usually known by.
Simul, together, as terantur simul, let them be rubbed together. Simul ac, at the same time that.
Sine, without. Sine morâ, without delay.
Singultus, hiccup.
Singulus, a, um, each; in singulis, in each; singulorum, of each.
Sinister, tra, trum, the left. Auri sinistro, to the left ear.
Satis, thirst; si sitiat, if thirsty.
Solitus, accustomed.
Solus, alone; only.
Solutus, a, um, dissolved, also loosened; as donec alvus soluta fuerit, until a stool is procured.
Solve, dissolve.
Somnus, sleep. Hora somni, at bedtime.
Spina, the spine, the backbone; also, a thorn.
Spina cervi, in the new Pharmacopœia called rhamus, buckthorn.
Spissus, thick. Spissitudo, thickness of consistence.
Statim, directly, immediately.
Stent, let them stand. Stet, let it stand.

Sternutatorius pulvis, sneezing powder, snuff.
Stupa, tow.
Sub, subter, under. Sub finem coctionis, when the boiling is almost finished. Sub, prefixed to a word, implies diminution, or a process not completed; also in many words has the same signification as the termination ish in English words, as sub-niger, blackish, not quite black. Subtepidus, lukewarm. For its meaning when applied to terms of chemistry, as subcarbonas, submurias, the pupil must study his chemical nomenclature.
Subactus, a, um, subdued, dissolved.
Subitus, a, um, Subitaneus, sudden. Subito (adv.), suddenly.
Subtepidus, a little warm, lukewarm.
Subige, dissolve it, make it unite. Subdue quicksilver with lard or balsam of sulphur.
Subinde, frequently, now and then.
Subtilis, subtile, reduced to fine powder. Pulv. subtilissimus, the very finest powder.
Sumat, let him take. Sumatur, sumantur, let it be taken, take.
Sudor, sweat.
Superbibo, to drink after taking any thing, as camomile tea or warm water after an emetic; or a cup of water or any liquid medicine to wash down a dose of any sort of pills.
Superinfundo, to pour upon.
Supra, above. Supradictus, above mentioned.
Syncope, a fainting fit.

T.

Tabellæ, tabulæ, lozenges.
Talis, such. Sumat talem, let him take such a one as this.
Talus, the ankle.
Tam, so. Tamen, yet.
Tactus, the touch.
Tænia, the tapeworm.
Tempus, temporis, time.
Tempora, the temples. Temporibus, to the temples. Tempori dextro, to the right temple. Tempori sinistro, to the left temple.
Temperies, temperamentum, temperament, degree of heat.
Tenacitas, tenacity. Ad debitam tenacitatem, of a proper degree of tenacity or consistence.
Teneo, to hold. Tenendus, to be held.
Tenuis, weak, thin, small, slender.
Tepefactus, warmed, made warm.
Ter, three times, thrice. Ter quaterve, three or four times.
Teres, teretis, round, taper; also teres is a name for the long and round worm infesting the human body, qu. d. vermis teres.
Tergum, the back. A tergo, behind.
Tero, to rub, Tere (imperative), rub. Terendus, to be rubbed. Terantur, let them be rubbed.
Tertius, tertia, tertium, the third.
Testacea, the prepared powders made of oyster-shells, egg-shells, crabs' claws, &c.
Thorax, the chest. Thoracis, of the chest.
Thus, frankincense.
Tinea capitis, scald head.
Torrefactus, toasted.
Tres, tria, three; tribus, in three, to three.
Triduum, three days.
Trituratio, a grinding. Trituratus, triturated, ground. Tritus, ground.
T.O., Tinctura Opii., what is commonly called Laudanum.
T.O.C., Tinctura Opii. Camphorata, Camphorated Tincture of Opium, called, formerly, Paregoric Elixir. This tincture is now called by the College, in the late reform of the Pharmacopœia, edit. 1809, Tinctura Camphoræ Composita.
Trans, through. Cola trans chartam, filter through filtering-paper.
Tussis, a cough. Tussi molestante, when the cough is troublesome.

U.

Ultimus, ultima, um, the last. Ultimó præscript, which was last prescribed.
Umbilicus, the navel.
Unà (an adverb), together.
Uncia, an ounce. Unciam cum semisse, an ounce and a half.
Undecim, eleven.
Unus, una, unum, one. Unius, of one. Uni, to one.
Urgente tussi, when the cough is troublesome.
Urgeo, to urge, to oppress, to be troublesome or painful.
Usus, use. Pergat in usu remediorum, continue the use of the medicine as before.
Usque ad, up to, as far as.
Ut, as, that, so that; in the same manner as.
Utendus, to be used.
Utatur, let him make use of.
Uterque, utraque, utrumque, both. Utriusque, of both. Utrique, to both, to either. Admoveantur hirundines ij tempori utrique, apply two leeches to each temple.
Utriuslibet, of whichever of the two, or more, the patient likes best.

V.

Vaccinatio, the act of inoculating for the cowpock.
Variotæ vaccinæ, the cowpock.
Vaccinum lac, cow's milk.
Valde, very, very much.
Valco, to avail; si non valeat, if it does not answer.
Variolæ, the smallpox.
Varicella, the chickenpox.
Vas, a vessel. Vasis, of a vessel. Vase clauso, in a covered vessel. Agitato vase, shaking the vessel.
Ve, vel, or; either: -ve is never at the beginning, but the end, of a word.
Vertebræ, the joints of the neck, back, or loins; the vertebræ, altogether, form that column of bones which is called the spine.
Verus, true, real, genuine.
Vena, vein. Vena saphena, the ankle vein.
Venæsectio, bleeding. Fiat venæsectio, bleed him.
V.S.B., Venæsectio brachii, bleeding in the arm. Fiat venæsectio in venâ saphena, bleed the patient in the ankle vein—or it may be understood, to bleed wherever you can find the best vein at the top of the foot to get blood from.
Vespere, in the evening.
Vespertinus, in the evening, as horâ vi^a, vespertina, at six o'clock in the evening.
Vehiculum, a vehicle; that is, whatever liquid or any other eatable or drinkable we take a medicine in, as barley-water, whey, jelly, or panada, &c.
Virginti, twenty. Viccesimus, vigesimus, the twentieth.
Vinosus, vinarius, of wine. Cyathus vinarius, a wine-glass.
Vices, turns; ad duas vices summendus, to be taken at twice; that is, half to be taken at first and the other half in some time after.
Vicibus partitis. See Partitus in P.
Vice, in the room of. Vix, scarcely, hardly. Ut vix sentiatur, so as that it can scarcely be perceivable.
Vitellus, the yoke of an egg.
V.O.S., Vitello ovi Solut.^m; dissolved in the yolk of an egg.
Vitrum, a glass. Vitreus, made of glass.
Vires, strength; si vires permittant, if the strength will bear it.
Vomitio, a vomiting. Vomitione urgente, when the vomiting is troublesome.
Vultus, the countenance.